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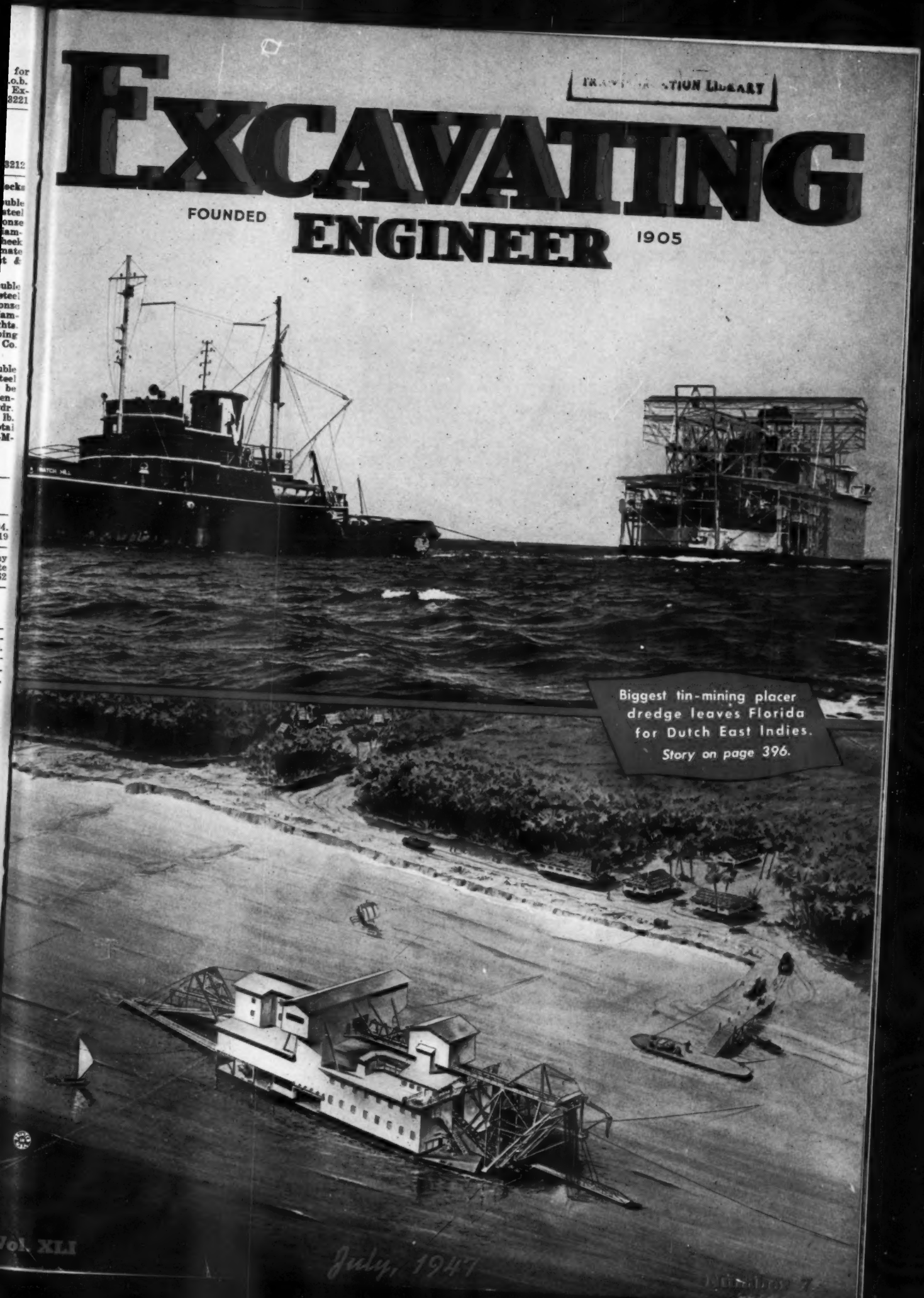

Biggest tin-mining placer dredge leaves Florida for Dutch East Indies.
Story on page 396.

Vol. XLI July, 1947 Number 7

Plenty of Punch

BIG ENGINES "tailored" to fit the work range of each model in the Bucyrus-Erie ⅜- to 2½-cu. yd. machine line produce power to meet all demands of excavator and crane service. Simple, efficient, long-lived machinery keeps this power always under the complete control of the operator, who can apply it exactly where he wants it, when he wants it, in the amount he needs.

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There are many more reasons why Bucyrus-Eries are "tops" among owners and operators alike. See your Bucyrus-Erie distributor for more information on how Bucyrus-Eries can help solve your excavating problems efficiently and economically.

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BUCYRUS-ERIE CO. SOUTH MILWAUKEE, WISCONSIN

EXCAVATING ENGINEER

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Published Monthly by

THE EXCAVATING ENGINEER PUBLISHING COMPANY South Milwaukee, Wisconsin, U. S. A.

E. M. HEUSTON, Publisher
P. H. WOODS, Editor
D. B. REED, JR., Manager
M. B. JAEGER, Associate Editor
M. J. BARGENQUEST, Sales Manager
E. W. ARNDT, Art Editor

Regular Subscription (payable in advance): 25 cents per copy, $2.50 a year: Canada and foreign, subject to publication policy, $3.50 per year. Special subscription: Upon written request on company letterhead this publication will be sent free of charge to companies, executives and supervisors engaged actively in excavating.

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LYTLE-AMIS USE

25 "EUCS"

ON CANTON DAM

Canton Dam, a U. S. Bureau of Reclamation flood control and irrigation project in Oklahoma, will be 14,300 ft. long, containing about 5,300,000 cu. yds. of rolled earth-fill.

Prior to suspension of work during the war, a large fleet of Bottom-Dump Euclids was used by T. L. James & Co. and Guilliams Bros. When work was resumed in 1946 by C. F. Lytle Co. and Amis Construction Co., Euclid equipment again was selected for this big dirt moving job.

During peak operations more than 20,000 cu. yds. of material a day were placed on the fill by a fleet of 20 Bottom-Dump and 5 Rear-Dump Euclids. Material ranging from blow sand to hard red clay was loaded by two 2½ yd. shovels, two 1½ yd. draglines and a Euclid Loader. Hauls varied from 3,300 to 8,000 feet in length.

Reliable performance and the ability of the Euclids to stay on the job day after day, working two ten-hour shifts much of the time, enabled the contractors to keep well ahead of their earth moving schedule. Your Euclid Distributor or Representative will be glad to show you why Euclid off-the-highway equipment is the choice of many leading contractors and industrial users.

A Euclid Loader working with Bottom-Dumps averaged 525 cu. yds. hourly production despite delays caused by lack of sufficient hauling units.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

CURRENT DELIVERY on a HYSTAWAY for installation ON YOUR USED "CATERPILLAR" D7 or D6 Tractor

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Sold by
"Caterpillar" Distributors
and Dealers Everywhere

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NEW LITERATURE READY

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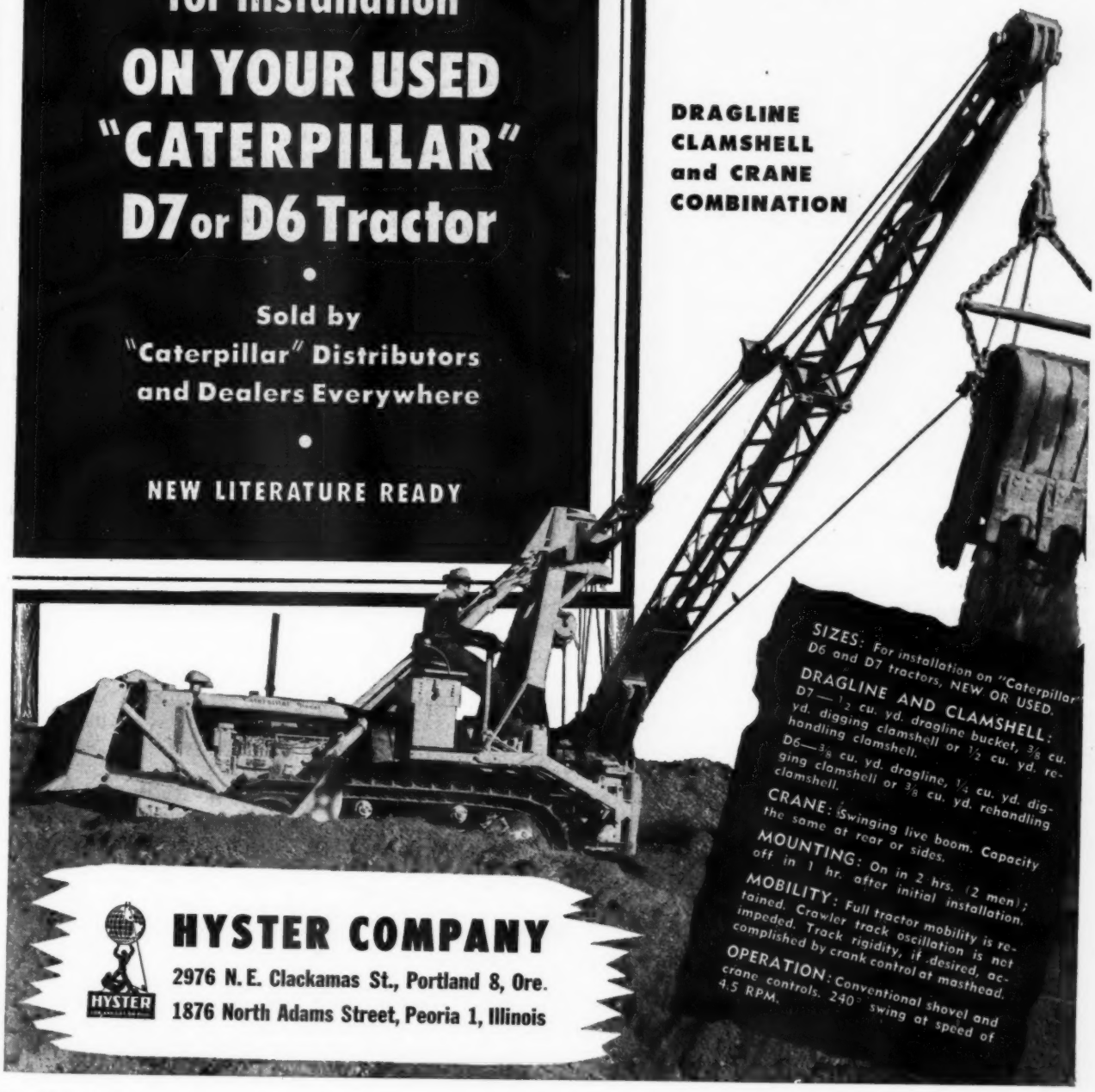
"a low investment tool for used or new tractors"

"MORE WORK ON MORE JOBS WITH A HYSTAWAY"

DRAGLINE CLAMSHELL and CRANE COMBINATION



SIZES: For installation on "Caterpillar" D6 and D7 tractors, NEW OR USED.

DRAGLINE AND CLAMSHELL: D7 — 1/2 cu. yd. dragline bucket, 3/8 cu. yd. digging clamshell or 1/2 cu. yd. rehandling clamshell.
D6 — 3/8 cu. yd. dragline, 1/4 cu. yd. digging clamshell or 3/8 cu. yd. rehandling clamshell.

CRANE: Swinging live boom. Capacity the same at rear or sides.

MOUNTING: On in 2 hrs. (2 men); off in 1 hr. after initial installation.

MOBILITY: Full tractor mobility is retained. Crawler track oscillation is not impeded. Track rigidity, if desired, accomplished by crank control at masthead.

OPERATION: Conventional shovel and crane controls. 240° swing at speed of 4.5 RPM.

HYSTER COMPANY
2976 N. E. Clackamas St., Portland 8, Ore.
1876 North Adams Street, Peoria 1, Illinois

Biggest Tin-Mining Dredge to Start Work In East Indies

• Pictured as it left Tampa to begin its long journey is the "Stuyvesant", first of the new dredges to get under way.

Mining Equipment Corporation's two new 14-ft. placer dredges, towed 15,000 miles from Florida to the Netherlands East Indies, are scheduled for prominent part in building up world tin supply.

SCHEDULED to begin operations in the Netherlands East Indies this month is one of the largest two tin-mining placer dredges ever built in the United States—the 4,150-ton, 14-cu. ft. "Stuyvesant." Its sister dredge, the "Roosevelt," is already on its way to join in the work of rehabilitating the important Dutch tin mines.

The two dredges were designed and built for the Mining Equipment Corporation of New York by Bucyrus-Erie Company, South Milwaukee, Wisconsin, with hulls and superstructures subcontracted to Tampa Shipbuilding Company, Tampa, Florida, which also handled the assembly and erection of machinery. Together, the "Stuyvesant" and the "Roosevelt" are part of a $40,000,000 program to replace and repair equipment destroyed or looted by the Japanese, when the enemy overran the rich tin-mining areas of the East Indies, Siam and Malay. The Civilian Production Administration and the Foreign Economic Administration cooperated with the Mining Equipment Corportion in executing a rebuilding program which had been compiled and actually put into operation before V-J Day. When completed, this program is expected to step up tin production above pre-war levels.

The East Indies island group, lying between Sumatra and Borneo, and comprising the three islands of Banka, Billiton and Singkep, is second only to Malay as a source of tin, having produced 51,000 of the total world production of 246,000 tons in 1941. The economy of the island group is largely based on tin-mining, an industry which began there early in the 18th century.

The "Stuyvesant" and the "Roosevelt" are intended to operate in the ocean off island coasts. They are identical in design, with hulls 246 feet long, 76 feet wide and 12 feet 9 inches deep, and each will excavate tin-bearing sand and gravel to a maximum depth of 100 feet below water level, with an estimated output of 300,000 to 400,000 yards per month. The total length of each dredge, over the gangway bridge at the bow and the tailing sluices at the stern, is 476 feet. The pilot houses are 36 feet above deck, while the highest point of the dredges is 85 feet above water line, or approximately the height of a nine-story building.

The "Stuyvesant" has a hull of

all-welded construction, divided into 52 compartments by two longitudinal water-tight bulkheads and 12 main transverse water-tight bulkheads, the ladder well and miscellaneous tank bulkheads. At the forward end of the hull the digging ladder well, 8 feet wide and 140 feet long, extends the full depth of the hull, thereby dividing the vessel into two separate structures for more than half its length.

The digging ladder itself is 216 feet long, 8 feet wide and 13 feet deep, weighing 220 tons without equipment. With the addition of buckets, rollers, idlers and tumblers, the weight is increased to 650 tons. The ladder carries an endless chain of 148 manganese steel buckets, each weighing 4,025 pounds, with a capacity of 14-cu. ft. The upper or inboard end of the digging ladder is pivoted on a trunnion about 57 feet above the water line, where buckets are actuated by an upper tumbler and driving machinery powered by a direct current motor with Ward-Leonard electrical control, and pass over idler rollers along the ladder. The ladder is suspended by two 12-part tackles from a heavy bow gantry extending 30 feet beyond the forward end of the hull. The suspension tackle is operated by another direct current Ward-Leonard controlled motor geared to a quadruple-drum winch located on the top chord of the main truss. The outer end of the ladder is raised or lowered in an arc to its maximum digging depth of 100 feet below water level.

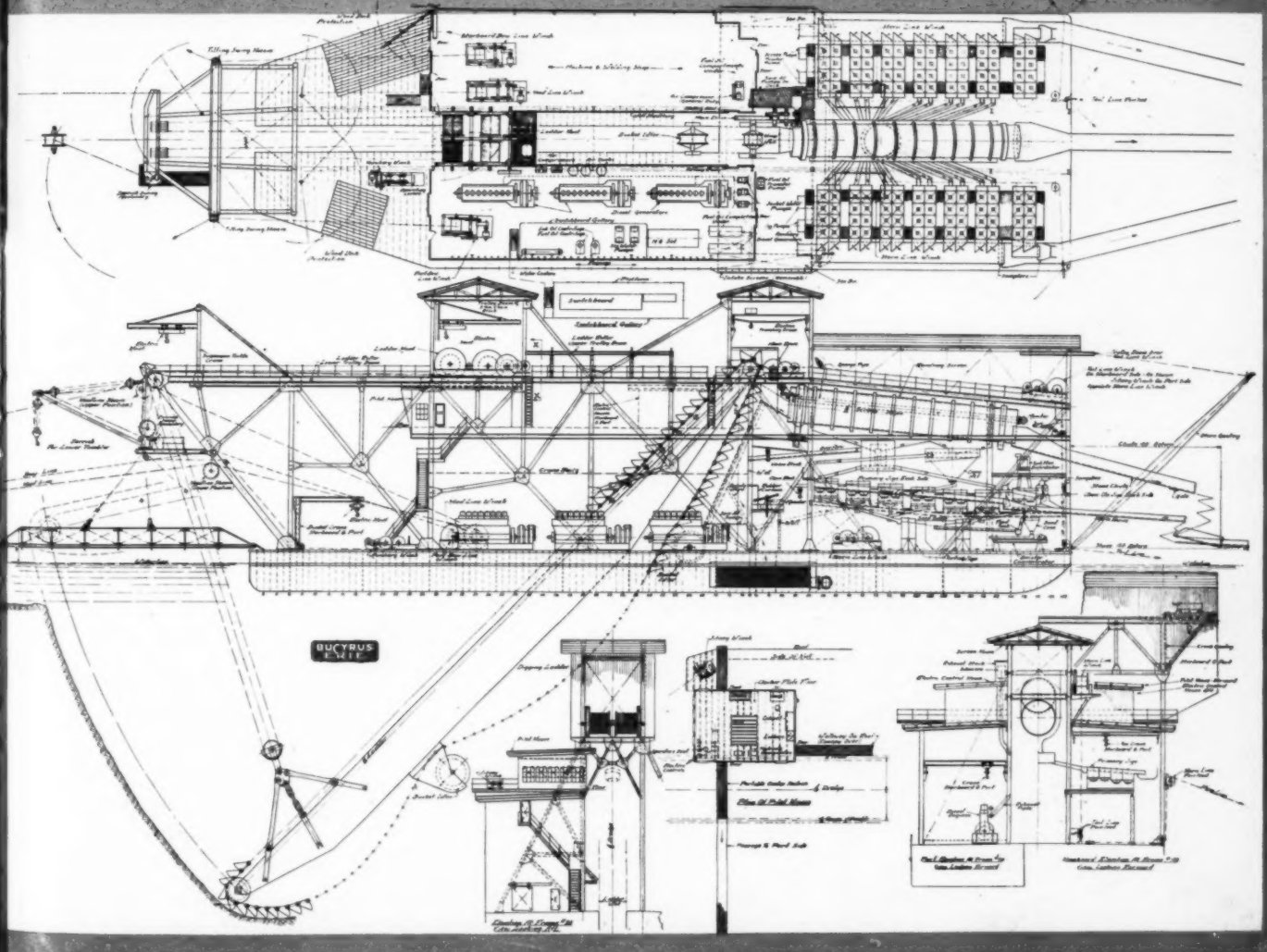
Revolving Screen

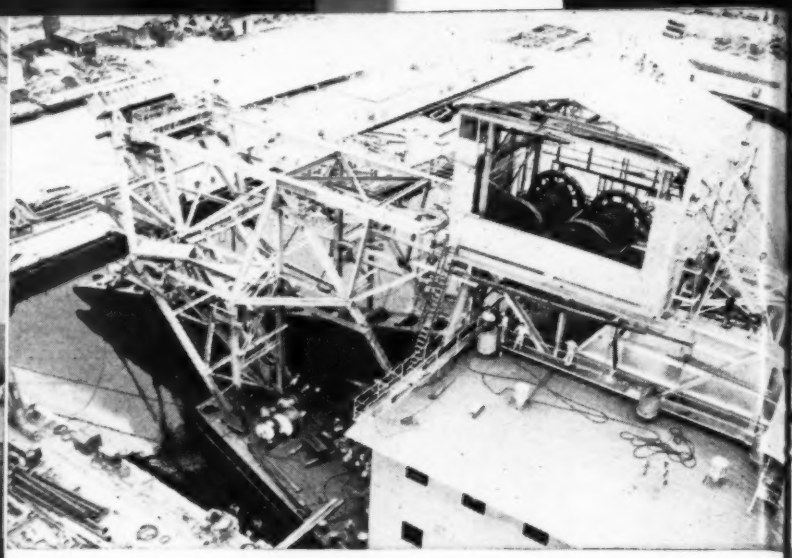
Bucket loads are discharged into a revolving screen 10 feet in diameter, 70 feet long, weighing 95 tons and driven by means of a 72-inch drive roller. It is believed to be the largest revolving screen in use on a placer mining dredge. Tin-bearing concentrates pass over twenty-four 4-cell primary jigs, then over additional jigs and concentrating tables which further refine concentrates through second and third stages to produce final concentrates which are shipped to refineries. The all-jig washing plant totals 128 cells.

Waste material is discharged 150 feet astern and 6 feet above water through sluices from the main jigs. When digging barren overburden, the material discharged by the buckets will pass over a removable chute placed in the revolving screen, permitting material to by-pass the treatment plant through a central chute which discharges 120 feet astern. Various parts of the hoppers and chutes are lined with abrasion-resisting steel plates. Distributor and disposal sluices are lined

(Photos on next two pages. Story continued on page 400)

• General drawing of the "Stuyvesant" and the "Roosevelt."



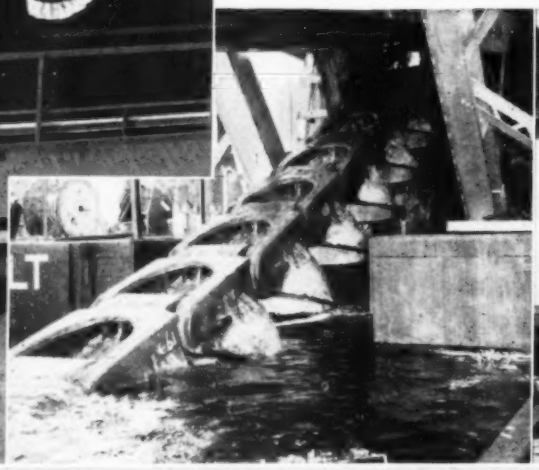


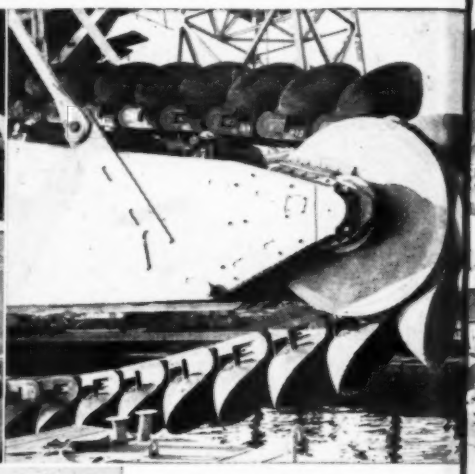
• Above: A quadruple-drum winch on the top chord of the main truss contr the two 12-part ladder suspension tackles which raise and lower the ladder.

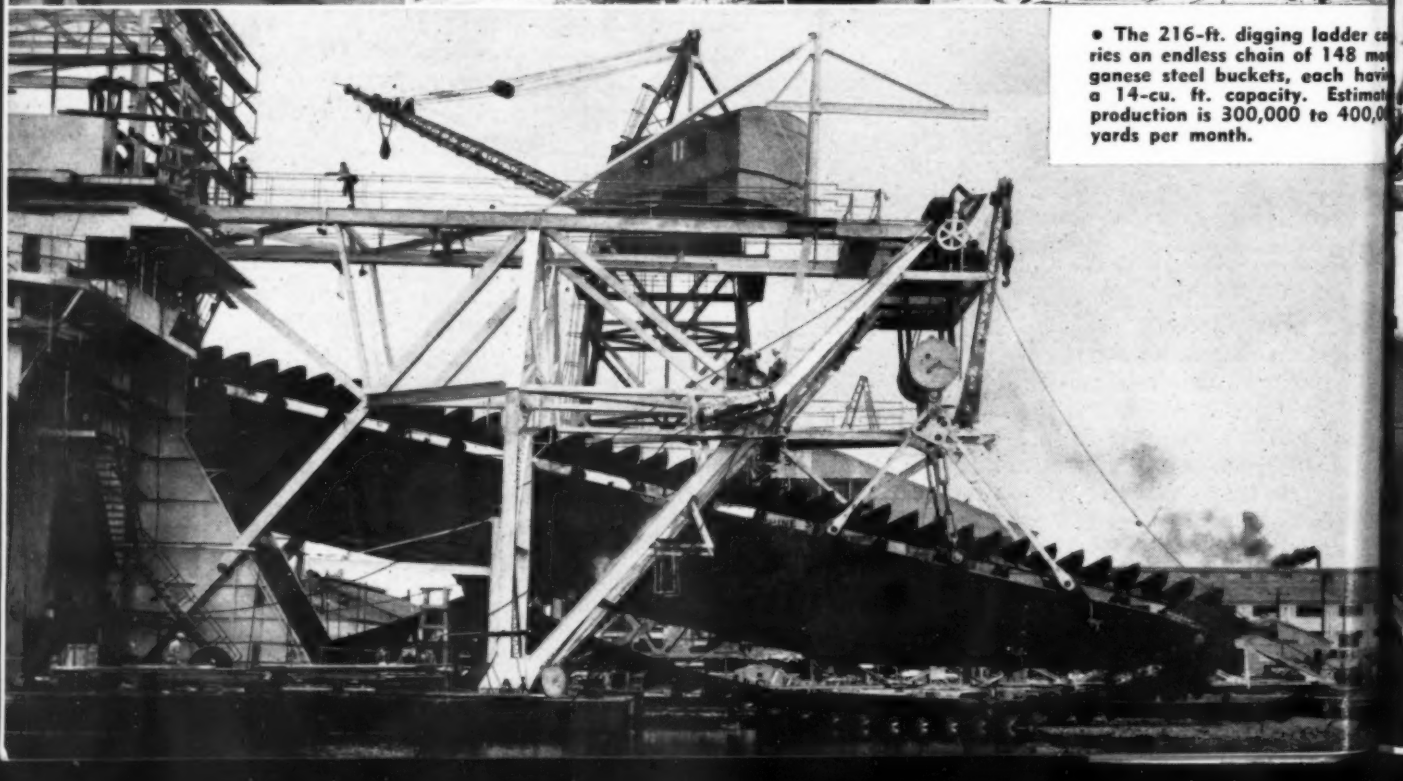
• Left: Construction view of hull shows the 140-ft. digging ladder well, over ha the length of hull itself. Brackets welded into ladder well, installed prior launching, were later removed.

• Below Left: Underside view of digging ladder shows buckets passing over low bucket idler during tests at Tampa. A second idler at rear of digging well hel support bucket chain.

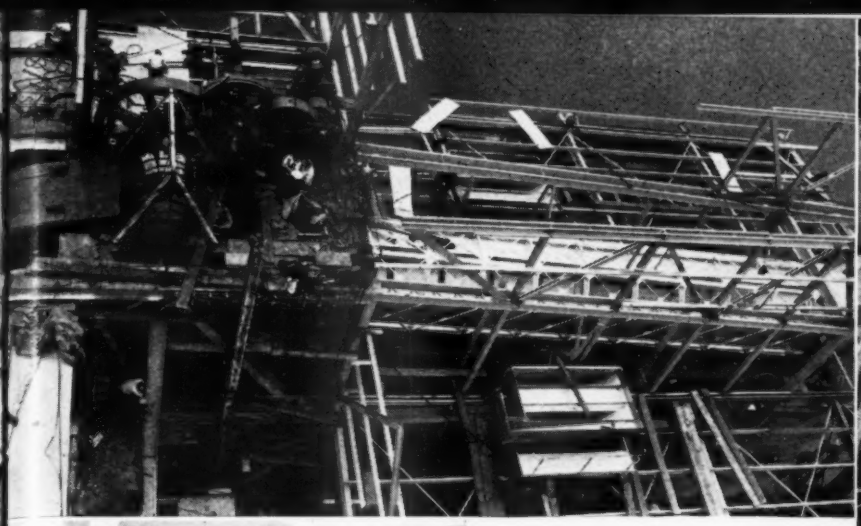
• Below Right: Lower end of digging ladder with lower tumbler. Ladder has maximum digging depth of 100 feet below water line.

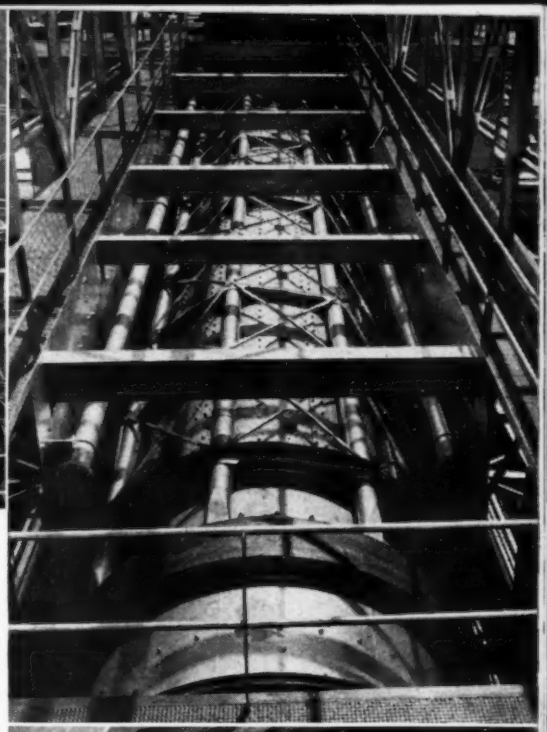






• The 216-ft. digging ladder ca ries an endless chain of 148 ma ganese steel buckets, each havi a 14-cu. ft. capacity. Estimat production is 300,000 to 400,0 yards per month.





• **Above: Overall view from a shipyard crane showing inboard end of digging ladder, upper tumbler with drive machinery, and revolving screen.**

• **Right: 70 feet long and 10 feet in diameter, the revolving screen weighs 95 tons and is believed to be the largest ever used on a placer mining dredge.**

• **Left: Interior view of revolving screen shows sparge pipe with water nozzles. Below pipe is a removable chute enabling barren overburden to by-pass treatment plant.**

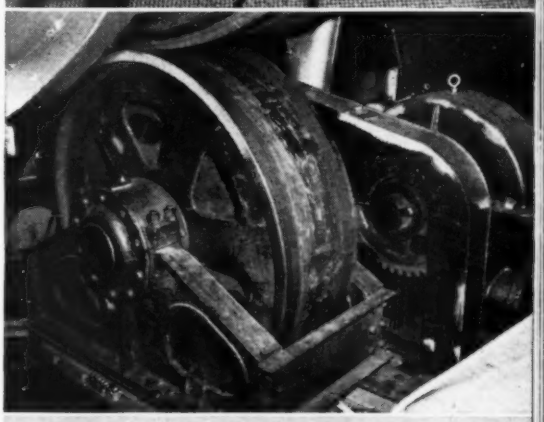
• **Right: The 95-ton screen is turned by this 72-in. friction drive roller, shown with drive machinery.**

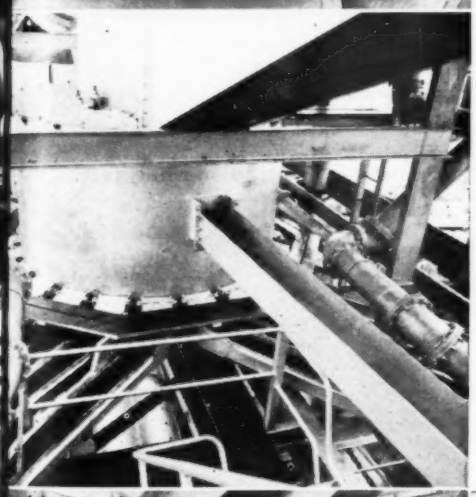
• **Left: Material from the revolving screen goes to this distributor and through rubber-composition-lined sluices to the primary jigs.**

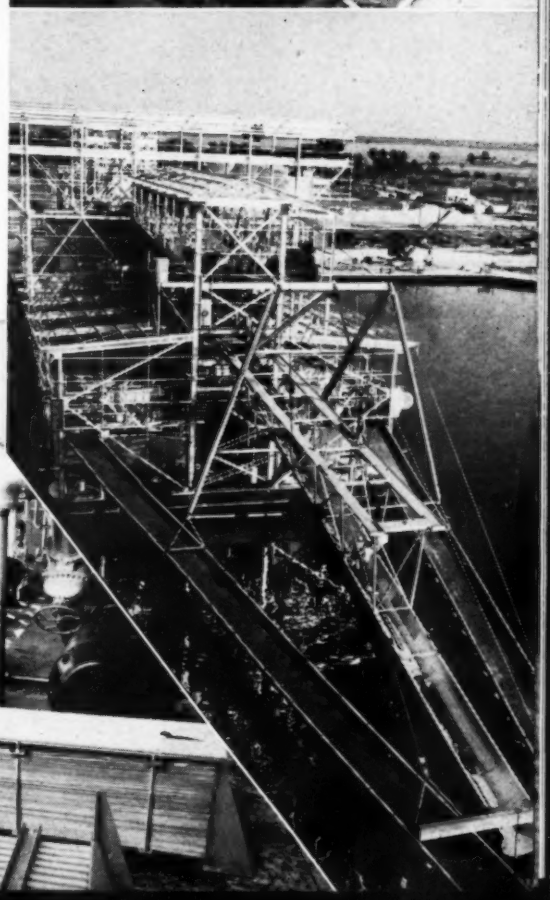
• **Bottom Left: A section of the all-jig washing and dressing plant, fed by sluices from the distributor. The washing plant includes 128 cells.**

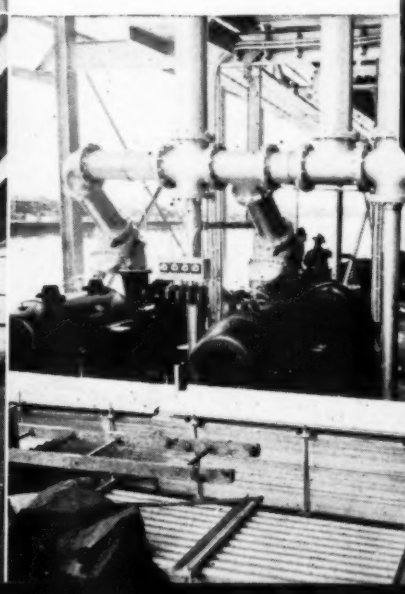
• **Right: Tailings are discharged 150 feet astern by two tailing sluices. Center chute dumps barren overburden 120 feet astern.**

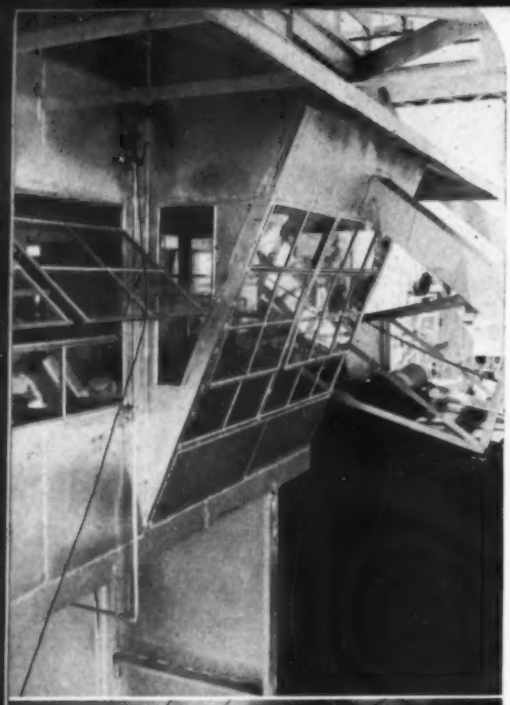
• **Below: Starboard screen pumps supply water for washing and sluicing ore. In foreground are sections of siding which were removed and secured before start of tow. Jig pumps are on the port side.**











Biggest Dredge

(Story continued from page 397)

with special rubber composition developed by U. S. Rubber Company and vulcanized to the plates.

Washing and sluicing tin-bearing sands requires 1,500,000 gallons of water per hour, or about the amount that would be needed for industrial and residential use in a city of 240,000 people. Water is provided by one 5-inch and six 12-inch pumps, including stand-by pumps, which supply it at the rate of 25,000 gallons per minute.

Independent Winches

The dredge is not self-propelling, but is maneuvered by six lines—two bow swing lines, two stern lines, head line and tail line — independently handled by motor-driven winches, each operated by a direct-current motor with Ward-Leonard variable voltage control. Though Ward-Leonard control has long been standard on large dry-land excavators and has been used in connection with a few operating functions on placer dredges, the "Stuyvesant" and the "Roosevelt" are the first dredges to use variable voltage control throughout. It is expected that the operating flexibility thus achieved will result in optimum output under varying conditions.

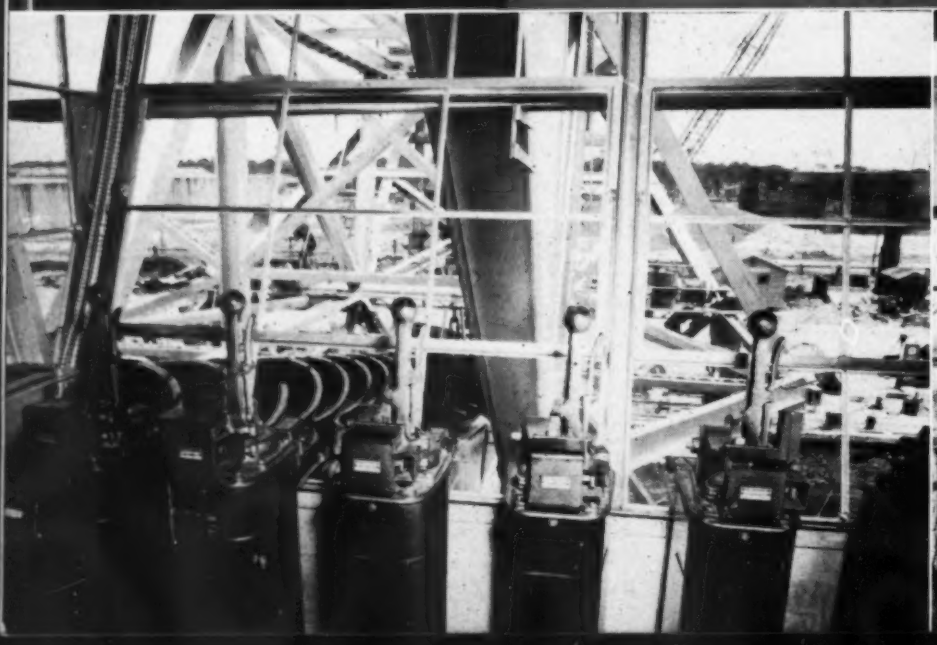
All dredge operations are handled by electric or hydraulic controls, practically all of them automatic, so the operator's main job is to handle the controls for the various motors.

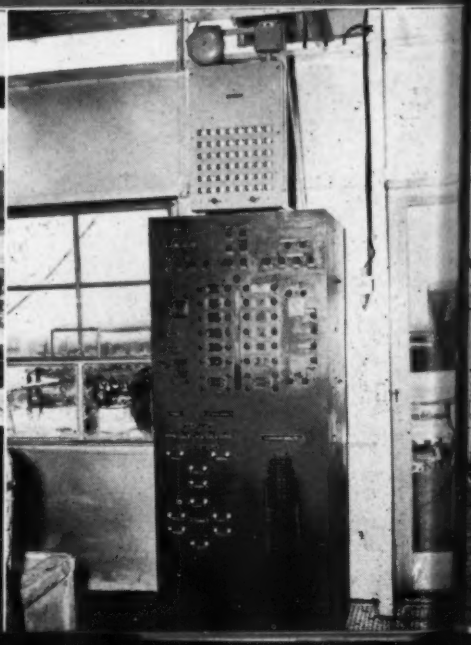
Supercharged Diesels

The dredge is operated by electric motors powered by generators, power for which is supplied by three Cooper-Bessemer vertical 4-cycle, trunk piston, solid injection diesel engines, each having eight 13″ x 16″ cylinders, supercharged, and each developing 875 h.p. at 375 r.p.m. Each diesel engine is connected to a 600 KW, 3 phase, 50 cycle, 400 V., .70 power factor, General Electric generator. Any two of these diesel engine generator sets operate the dredge, while the third is installed as a spare or stand-by unit. While digging barren overburden, only one diesel engine and generator are used, and two 75 KW General Motors diesel generator sets are installed for emergency stand-by and auxiliary service.

Safety features aboard the dredge included a bilge alarm system for each watertight compartment, a free-board alarm for each corner of the dredge, and diesel engine operating alarm system. Devices for indicating and recording the performance of all major

- Top: Slanted windows of pilot house give unobstructed view of digging operations.
- Left: Interior of pilot house shows bank of Ward-Leonard control levers.
- Below Left: Operator's view of controls and digging ladder bucket line.
- Below Right: Gauge board in pilot house records performance of all major units. Bilge alarm panel above gauge board safeguards each watertight compartment in hull.





units include a gauge board indicating operating conditions of all units in the tin concentrating plant, a depth indicator and revolution counter.

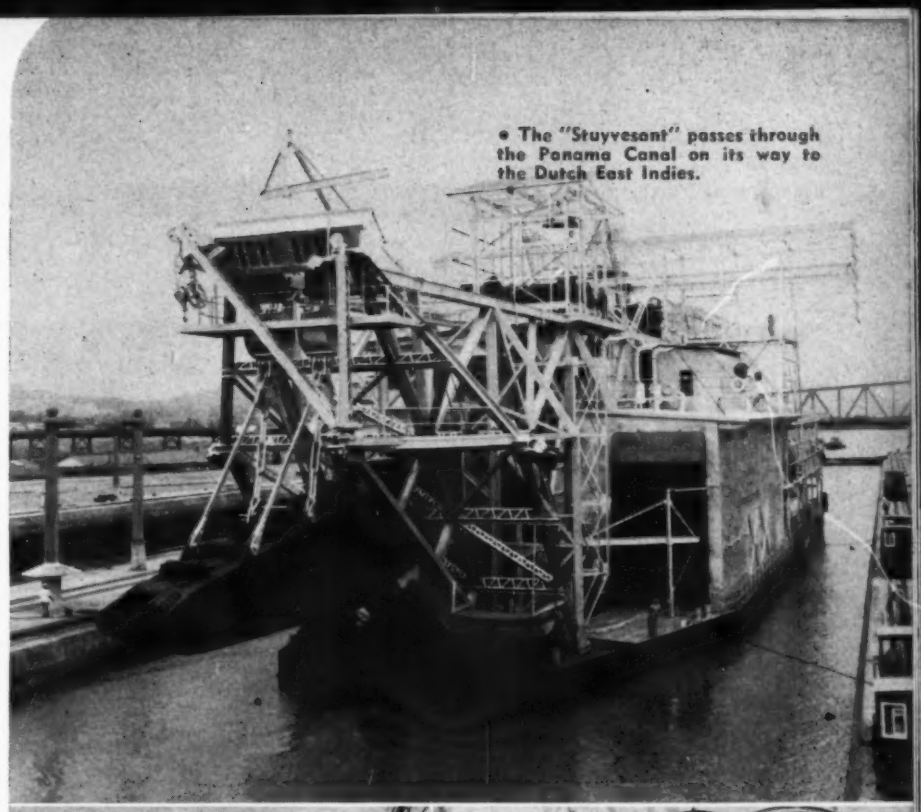
The three-month tow that brought the "Stuyvesant" to the East Indies is the longest international tow ever undertaken under the American flag. The Moran Towing & Transportation Company used big V-4-M-AI diesel ocean-going tugs built during the war and chartered from the U. S. Maritime Commission. The "Stuyvesant," towed by the tug "Watch Hill" under the command of Capt. William H. Smith, left Tampa on March 11th, making one stop for refueling at Pago Pago, American Samoa.

30-Man Crew

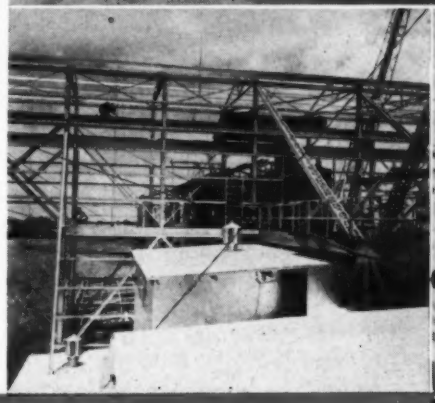
The tug "Watch Hill" carried a crew of 30, while the dredge itself was staffed by eight men under the command of Capt. George C. Allen. Towing speed was from six to eight knots per hour, following a course about 3 degrees north of the Equator after leaving the Panama Canal. The "Roosevelt" left Tampa on May 9th and is expected to reach Banka about August 1st.

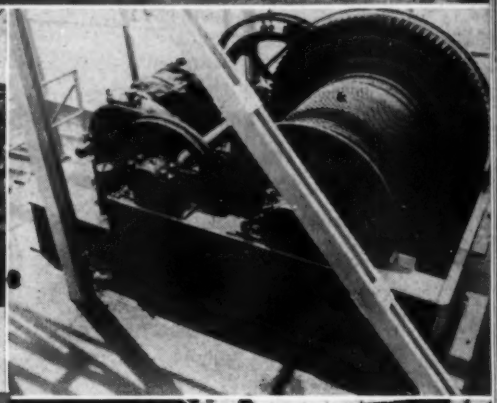
In preparing the "Stuyvesant" for the voyage to Banka, the dig-

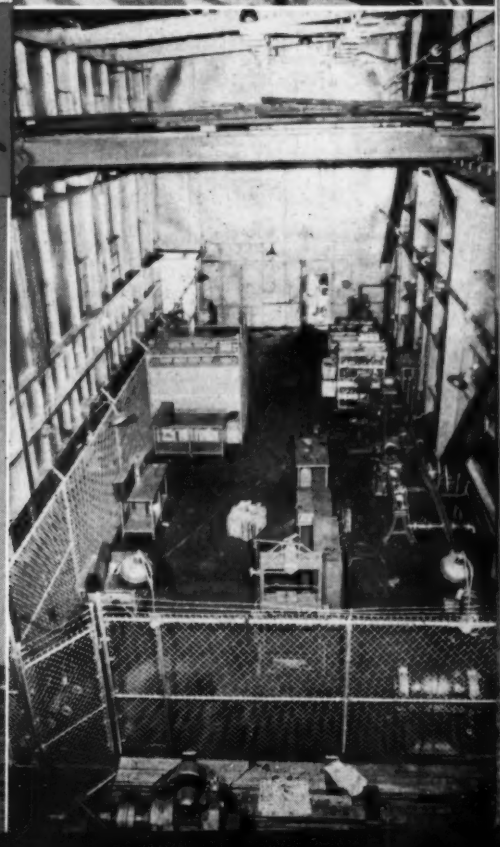
(Continued on page 436)

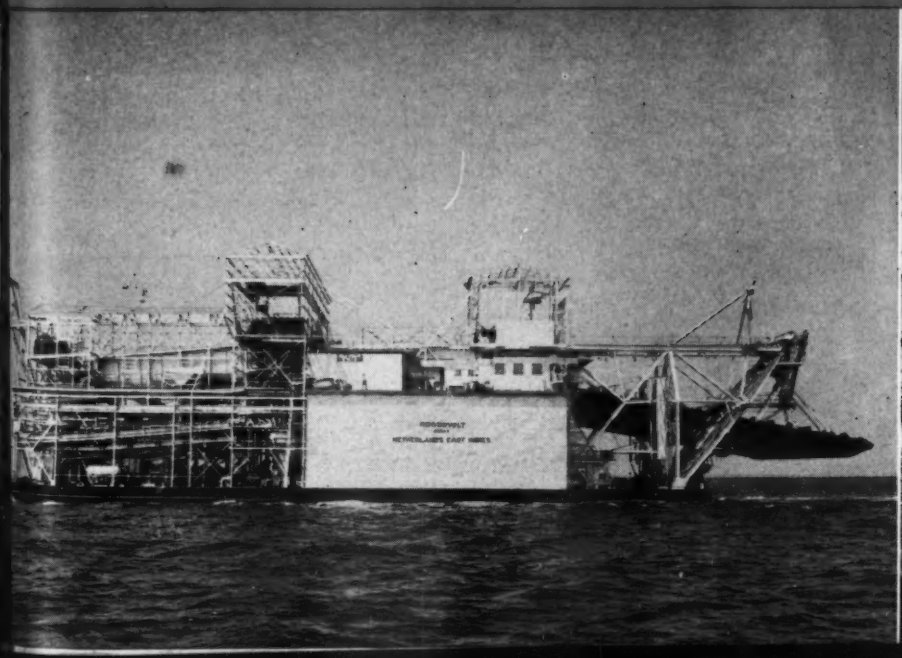


• The "Stuyvesant" passes through the Panama Canal on its way to the Dutch East Indies.









• Above: A temporary galley serving the towing crew aboard the dredge was installed aft of the pilot house.
• Above Right: The tail line winch is one of six winches which handle maneuvering of dredge at work. All are independently operated, Ward-Leonard controlled.
• Right: The machine shop located on the starboard side of the "Roosevelt."
• Below: Broadside view of the "Roosevelt" as it left Florida on May 9th en route to the Dutch East Indies.

• Bucyrus-Erie 1½-yd. shovel loads raw gravel to one of the Chevrolet trucks for hauling to crusher (left background). After processing, material is hauled to the highway job by GMC trucks (right background).

Lack of suitable natural material on George E. France's 5-mile highway job made necessary the excavation and crushing of 22,000 cu. yds. of 2½ in. base course rock. Also involved were 114,000 cu. yds. of dirt excavation, 10,000 cu. yds. of imported borrow and production by crushing of 23,000 tons of mineral aggregate.

JUST NORTH of Bakersfield, California, a new oil-surfaced state highway will soon be able to route automobiles the short way to Ducor, Porterville, and points beyond. One of the important contracts in the new link, soon to take its place in California's highway system, is a 5.1-mile piece, graded and paved through new country by George E. France, Visalia contractor, at a cost of $166,000.

France's equipment and crews are rapidly finishing the project, which involves such sizable work items as 114,000 cubic yards of unclassified roadway excavation, nearly 10,000 cubic yards of imported borrow soil, and the production by digging and crushing of about 46,000 tons of fine rock for base course and surfacing.

Last November, France moved on the job, bringing two Caterpillar D-8 tractors with three Caterpillar model DW-10 hauling wagons, to start excavating cuts and building fills for the new route. One of the D-8 tractors saw service pushing the DW-10's, while the other was used in smoothing dumped earth on fills, or pulling two sheepsfoot roller units on compaction work.

2500 Yds. a Day

There were 700,000 yards of station overhaul in the job, to make cut and fill quantities balance each with the other, but despite extra hauls, France's equipment worked through the winter eight hours a day at an average production rate of 2,500 cubic yards for the three-unit hauling fleet.

Earth formations encountered on this job ran from clay to a sandy loam, with some pockets of uncemented glacial gravel. The dirt was dumped in layers not more than 6 inches thick, spread by a bulldozer, and watered if necessary by a sprinkler truck. After this treatment it was rolled by a two unit sheepsfoot roller until about 95 per cent of best laboratory weight per volume had been obtained.

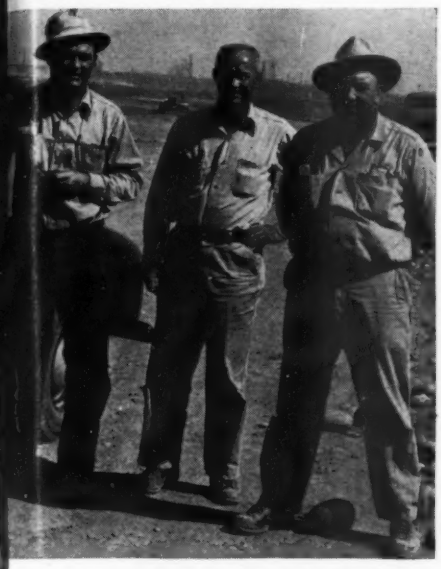
Long before the earth work was finished, France started to set up a rock plant in a glacial gravel pocket close to the center of his job. The setup was made to process 22,000 cubic yards of a special base course rock, and when that was done to crush about 23,000 tons of mineral aggregate for the roadmixed asphalt surface. The lack of any suitable natural base course rock anywhere near the job, meeting size requirements of 2½ inches and under, caused the unusual operation of base crushing.

Crusher Set Up

A new Pioneer portable crusher was set up with a Murphy diesel engine for power and about 45 per cent of the pit run rock in the job was excavated and loaded

by a 1-yd. Northwest dragline working above an 18-ft. face. This machine also excavated ditches for culverts and drain pipes early in the job.

In order to keep up to the crusher's 275 ton-per-hour capacity and to handle the deeper cuts, the dragline was replaced early in April by a new 1½-yd. Bucyrus-Erie shovel. Five Chevrolet and Ford dump trucks took the raw rock from the shovel in 5-cu. yd. loads, and hauled to the receiving hopper of the crushing machine, about 400 feet from the shovel.



• Directing this highway job are (from left) Superintendent John Fields, Resident Engineer L. E. Tresidder, and Contractor George France.

• Below: Ford truck dumps load of raw gravel in crusher hopper (right) while surveyors check pit (foreground). Power unit at left driving crusher is a Murphy diesel engine.

Natural material in the pit was a fairly well graded alluvial deposit, probably a part of an ancient glacial till. Particles varied in size from 1/200th of an inch to large round boulders eight inches in diameter. The deposit was clean, with little dirt present. The 1½-yd. shovel was put into operation against a vertical face 22 feet from the top to the shovel tracks. The operator found it necessary to loosen almost all this material by skimming the dipper up the bank face, its bottom gate unlatched, in spite of the fact that no apparent cementing of particles could be found.

Minus 2½ Passed

Dump trucks tipped their loads into the crusher's primary hopper, lined with steel rails 6 inches apart to screen out the greatly oversized stones. Pit run material meeting the 2½ inch maximum dimensional requirement passed on through the plant direct to a surge bin. Larger stones were routed through a jaw crusher and two sets of roll crushers before passing out to this storage bin. Sliding gates on the bottom of this 50-ton hopper permitted a fleet of 10-ton dump trucks — GMC's, a Mack and a Diamond T — to stop under the bin, take on a load, and travel to the new highway. France tried as much as possible to prevent heavy concentrations of these hauling trucks at any one place anywhere on the hauling circle, in order to keep the plant working steadily and all the other work phases smoothly operating.

State highway department specifications for the two main sizes of rock call for a certain per cent of each size, with a top and bottom percentage known as "tolerance." The screen sizes on this project, with their tolerances, were as follows:

For Crusher Run Base Material	
Screen Size	**Per cent Passing**
2½ inch	100
2 inch	90 to 100
¾ inch	50 to 80
¼ inch	30 to 50
1/200 inch	3 to 11

For Roadmix Surfacing Material	
Screen Size	**Per cent Passing**
1 inch	100
¾ inch	95 to 100
⅜ inch	67 to 85
¼ inch	50 to 65
No. 8 (⅛ inch)	37 to 50
No. 30 (1/30 inch)	18 to 28
1/200 inch	3 to 8

Dump trucks hauling the select base course crushings to the job used the old existing county road near the job, where possible, and a temporary bladed earth road the remainder of the way. They dumped their loads in long, thin strips, ordinarily not more than 2½ inches in thickness. A No. 12 Caterpillar motor grader was used to smooth the surface of this dumped rock just behind the trucks. Two water tanks, one holding 3000 gallons and one holding 1800 gallons, both mount-

ed on GMC trucks, were used with a spray bar device to sprinkle the rock layers. From 18 to 24 gallons of water was put in to the cubic yard of rock, depending on the dryness of rock and the climate. After the water was put in the lifts were thoroughly rolled by a sheepsfoot roller. The round trip hauls of ten miles were made between the pit and the job by each truck in 25 minutes' time.

With tonnages of crushed rock involved as well as cubic yard measurement, state highway department forces working under resident engineer L. Tresidder had to measure the pit first by running survey cross sections about the time the base course was finished. This gave the volume removed. After that time, when the more selected crushing of mineral aggregate began, tonnages were to be weighed on scales set up at the pit.

France expected to use two motor graders, two Seaman Pulvi-Mixers and an Etnyre asphalt distributor for mixing the road surface after all the base course has been laid. With Superintendent John Fields on the project full time, and Contractor George France there most of the time, the engineers expect that by July 10 this year the new route will be finished and open to traffic. The new road is to be 36 feet wide at the top of its select base course, part of this width being devoted to standard 6 foot shoulders.

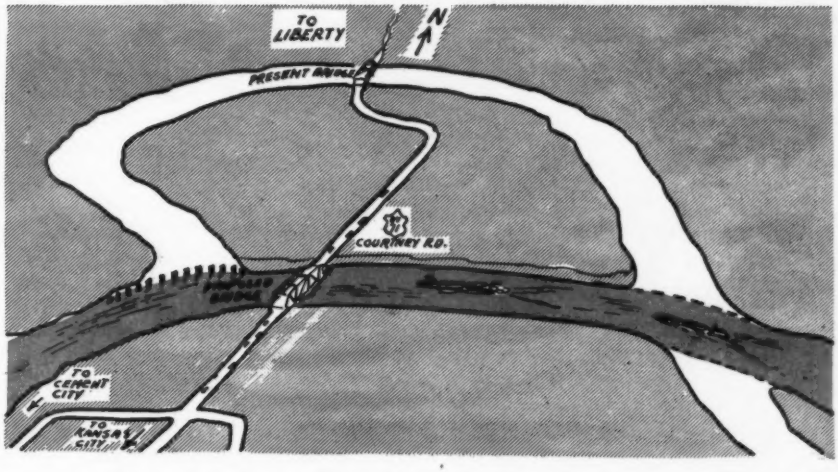
The program of daily lubrication, fueling and mechanical maintenance on France's equipment was so thorough that a Crook Co. [illegible]ny representative at Bakersfield remarked, "This is one of the cleanest, most orderly jobs anywhere in this area." The new shovel is in tip-top shape, naturally, due to the normal pride of a good oiler and operator in this equipment. Trucks, tractors and the crusher receive daily doses of excellent lubricating service on the job.

• Clockwise, starting upper left: 1. Surveyors cross-section the gravel p[it] for the resident engineer to get an accurate measurement of yards remove[d] 2. 1½-yd. shovel loads Ford truck at 22-ft. face. 3. Ford truck dump[s] load at receiving hopper of crusher while workman waits to remove oversi[ze] pieces from grating with hook bar. 4. GMC 10-ton dump trucks spre[ad] base coarse after hauling from crusher. Material is leveled by Caterpill[ar] No. 12 grader (left) and sprinkled by GMC tank truck.

The River Will Help

By RAD NELSON

U. S. engineers at Kansas City plan to eliminate a 6-½ mile loop in the Missouri River by digging a pilot 1-½ mile cutoff and controlling the river while it completes the new channel.



Artist's sketch shows present 6½ mile bend in the Missouri River, below Kansas City, which will be diverted into 1½ mile cutoff (show in color) after new bridge is built and pilot-cut finished.

AFTER a long steel bridge is built on dry land in the Missouri river valley north-east of Kansas City, the river will be diverted into a new channel beneath the span in an unusual excavating project. A pilot cut will be made under the bridge and engineers expect the waters to do most of the work in cutting out the new course. When the flood waters have widened the cut to the size desired, the cutting action will be stopped with pile dikes, rip-rap and other barricades.

On Highway 71

A contract has been awarded jointly to the Kansas City Bridge and Massman Construction Companys for the 1.8 million dollar bridge job, which is expected to require eighteen months to finish. Preliminary work is now underway by construction and survey crews. The bridge will be on U. S. highway No. 71, in the so-called Liberty bend of the river about fifteen miles downstream from Kansas City.

The first step is the building of a ¾ mile detour road west of the present highway. The Midwest Pre-Cote Company has the $100,000 subcontract for construction of this bypass and the two 479-foot approaches to the bridge.

In building the highway bypass, three diesel crawler tractors with scrapers will be used. The road will be constructed on the flat river bottomland parallel to the present pavement. There are 35,000 cubic yards of pure sand and sandy loam to drag and grade.

The bridge itself will consist two 460-ft. steel spans founded on caissons which will be sunk pneumatically to rock. In addition, there are four approach spans each 185-ft. long (two on each end), and two approach spans each 107-ft. long (one on each end.) Outside of three pneumatic piers, all the remaining piers are to be founded on pile foundations. The total length of the bridge from abutment to abutment is approximately 1880 ft. The pilot channel will be dug directly beneath this structure. It will be about 1-½ miles long and will cut across the narrow neck of land at the base of the river bend. The present channel now forms a giant 6-½ mile loop.

River is Excavator

According to Clifford Philo, U. S. field engineer overseeing flood control work on the river, the pilot channel will be completely excavated with the exception of a "plug" at the upstream end. When this plug of earth is dug away, the water will flow into the man-made channel. The erosive action of the current will eat away the alluvial soil, widening the new channel to the width desired. Then the widening will be halted and the banks permanently protected against further erosion. Details for excavating the pilot channel have not been completed, and this work will be performed, along with dike work, by the U. S. Engineers, or by additional contracts, or by a combination of both.

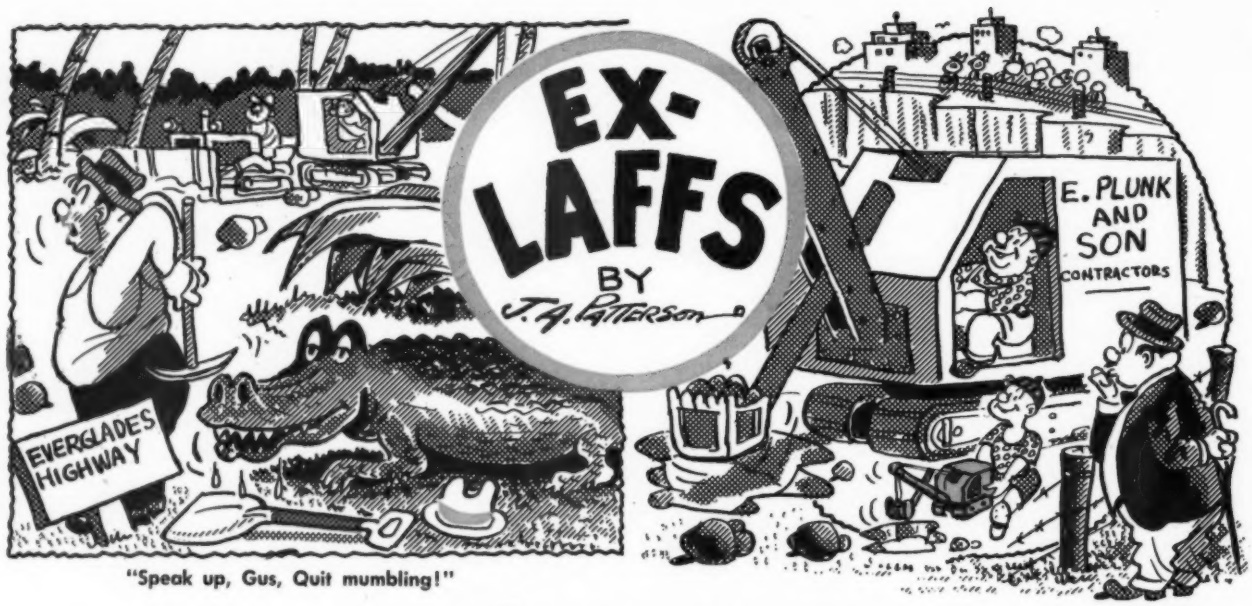
Supervision

All work will be under the immediate supervision of the U. S. District Engineers' office at Kansas City, of which Col. W. E. Potter is District Engineer. Brig. Gen. Lewis A. Pick is Division Engineer for the area, stationed at Omaha. R. D. Bleich is general superintendent in charge of the work for Massman and Kansas City Bridge Companies.

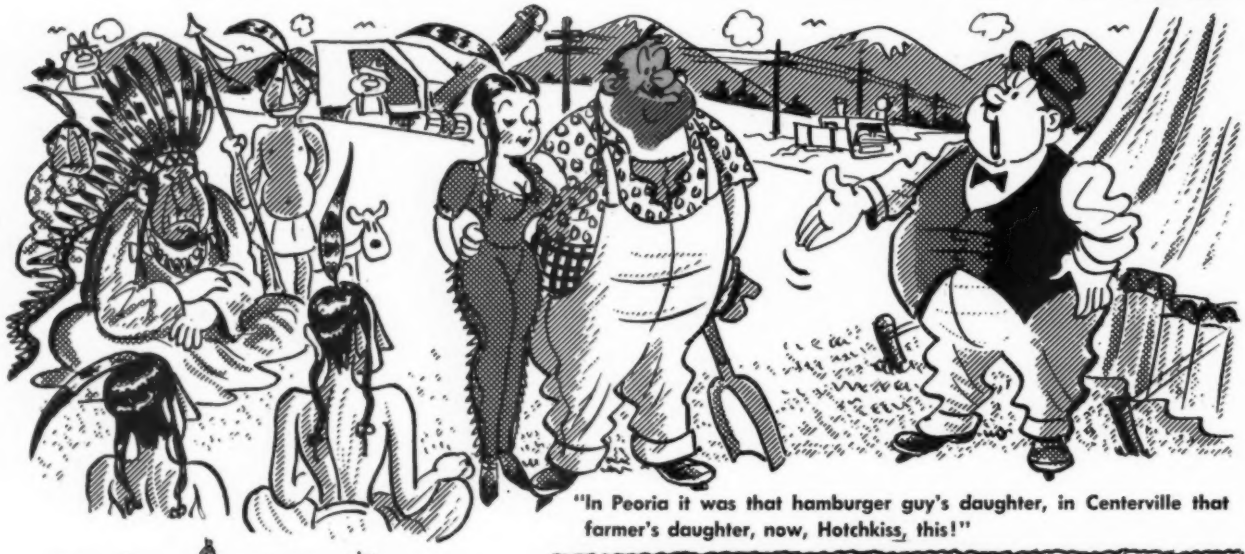
The Liberty bend bridge and river diversion project is part of the Pick-Sloan plan and an integral part of flood control measures affecting Kansas City. When the river flows through the channel under the bridge it is expected the crest of flood waters upstream will be lowered about two feet.

Complete Diversion

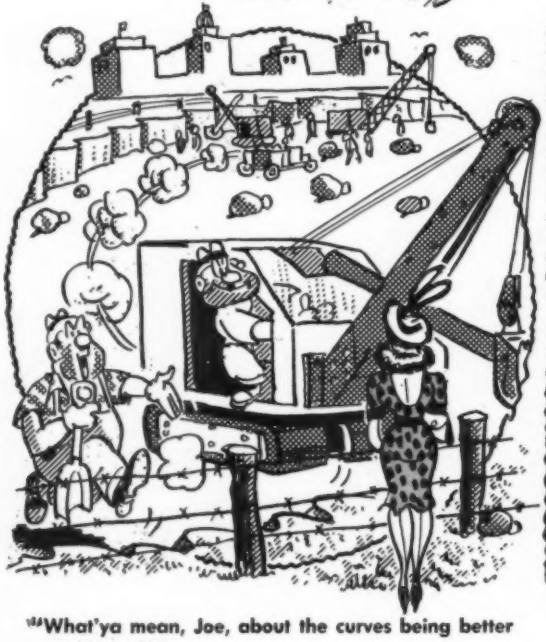
When the new cut-off channel finally carries the entire flow of the river, the old course will be filled in gradually as silt and sand lodge in the drying bed of the stream. Pile dikes will hasten this work, slowing the velocity of the current going in the old direction. The old channel will resemble a river only in flood periods as the water backs up.



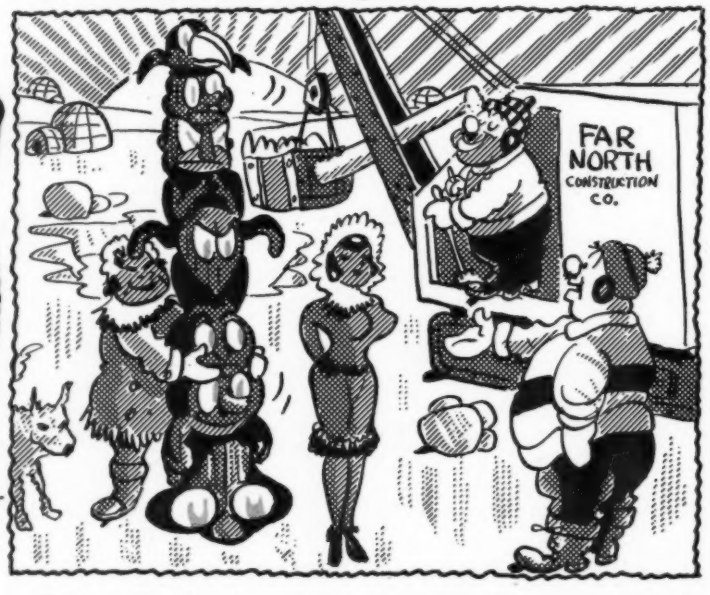
"Speak up, Gus, Quit mumbling!"



"In Peoria it was that hamburger guy's daughter, in Centerville that farmer's daughter, now, Hotchkiss, this!"



"What'ya mean, Joe, about the curves being better at this end?"



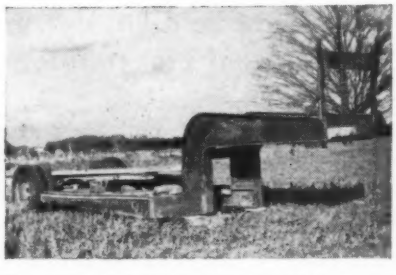
"That's swell! He's a city worker & can't operate without an audience!"

Field NOTES

Goose-Neck Trailer

A time-saving goose-neck trailer made from salvaged material proved to be the answer to Milton Seehaver's problem of transporting his P&H dragline to various roads at the speed of one mph was the old method which the Orlond, Indiana, contractor used before he made his trailer. After deciding on a goose-neck trailer, Seehaver conferred with a local welder and learned that a unit of this kind was available in nearby Fort Wayne as Government Surplus. It was purchased and assembly began with the acquisition of two 10-inch "I" beams, 16 feet long as part of the rear framework, and two 12-foot channel irons for the side rails.

These 12-foot pieces need not extend past the rear wheels. All metal parts were welded into place. Flooring was made from three-inch thick elm boards. Seehaver selected elm because it is tough and durable and available at a local saw mill. The unit has a 10-inch clearance permitting transfer over fairly rough terrain. Its carrying capacity is between



18 and 20 tons. Two-thirds of the weight of the machine is carried by, or rests, on the rear wheels, while one-third is supported on the tractor.

Seehaver was obliged to depend on used tires for the rear, and he used size 20″ x 10″ duals. This equipment permits a speed of 20 mph on the highway, and with new tires even greater speeds could be made safely. According to Seehaver, the material used— every bit of it salvaged— cost him $350, including the welder's time and labor.

A. E. Holden

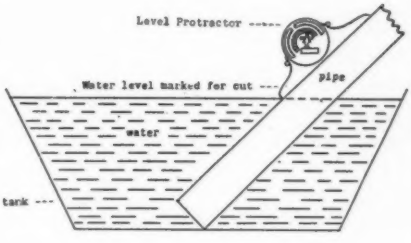
Destroying Black Powder

Black powder can best be destroyed by dumping into water, preferably in a stream or some large body of water. Prior to using this method operators should make sure that they aren't violating State anti-stream-pollution laws or damaging water supplies.

Black powder may be burned, if a water dump is inadvisable. The contents of only one container, holding 25 pounds or less, should be burned at a time. The powder should be poured on the ground in a 2-inch-wide trail. No part of such a trail should parallel another part at a distance of less than 10 feet. The powder should be ignited by a train of combustible material.

Be sure to wash out the empty powder containers. "Empty" containers have often caused explosions.

Reprinted from Bureau of Mines Circular 7335



Accurate Pipe Cutting

A small tank of water, a level protractor, and a piece of chalk are the only tools needed to simplify the correct marking of pipe for cutting with power saw or torch. Using the level protractor to determine the correct angle, the pipe is submerged in the tank at one half the desired angle of bend. Then, by marking the pipe with chalk, the right line of cut for that particular angle is indicated. If many similar cuts are to be made, it would help to prepare a template of heavy paper or light metal to match the cut on the original piece.

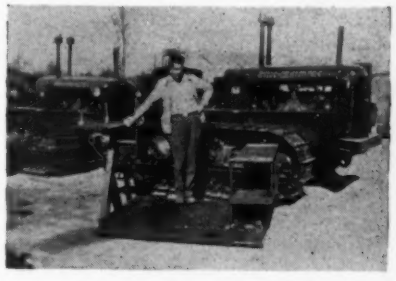
When a bend of more than two sections is needed, the correct angle of each cut required to arrive at the total angle of bend can be estimated by using the following equation: total angle of bend over 2X (number of sections — 1) = angle of cut.

Myron C. Ziemke

Motor Repair Stand

A motor repair stand which is credited with saving approximately 25% in labor time on motor overhauls was recently built by R. L. Wilson, service manager of Southern Equipment and Tractor Co., Monroe, La.

The time-saving repair stand is built of scrap materials which included an old gear box from the blade lift mechanism of an old pull type grader. Attached to the shaft extending from the gear box is a plate drilled to accomo-



date any 3, 4, or 6 cylinder GM Diesel motor block. All that is necessary to attach the motor block to the plate is to remove the blower assembly, then bolt the block to the plate for servicing— either assembly or disassembly. Shelves are provided for motor parts within easy reach of the mechanic.

Mounted on four casters, this mobile stand can really give mechanics a hand. By suspending the motor on the stand, deep knee bends, head stands and other acrobatics commonly required to get at engines are eliminated.

Weighting Tractor Wheels

Extra weight can be added to the rear wheels of a pneumatic tired, wheel type tractor when more traction or pulling power is needed. The load, of course, should not be unreasonably heavy.

Extra weight is needed only for heavy pulling or when heavy equipment such as a snowplow or bulldozer is mounted on the tractor.

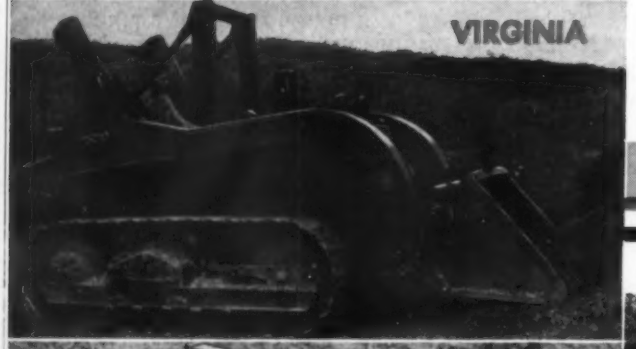
Weight may be added to the driving wheels by bolting cast iron or concrete weights to the wheels. However, the most economical practice is the use of liquid in the tires.

First, secure an adapter from your dealer and attach it to the tire valve. Then, after jacking up the wheels or placing the tractor

(Continued on page 432)

Coast to Coast

DOZER-SHOVEL



Wherever you are, you don't have to go far to watch a Bucyrus-Erie DOZER-SHOVEL lopping big slices off operating costs! From coast to coast, these versatile units are easily handling an endless lineup of excavating, dirt-moving, and material handling jobs — many of which formerly required larger machines.

Nor do you have to prompt owners and operators to get them talking about the DOZER-SHOVEL features responsible for cost-cutting output. They'll quickly let you know about such things as: smooth, positive hydraulic control that eliminates waste motions; design that "lets the tractor be itself," permitting it to retain its inherent operating char-

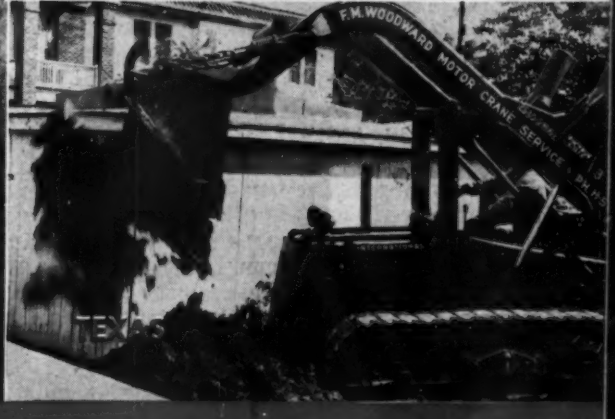
For BUCYRUS ERIE Balanced Tr

To Make Your Dirt Moving Pa

atures Pay Off in Lower Costs

acteristics; clear visibility, so the operator can see what he's doing; low clearance and exceptional maneuverability, allowing the unit to squeeze through low, narrow openings and work effectively in close quarters; the "quick change" that makes it so easy to use a DOZER-SHOVEL as both shovel and bulldozer; the simple, tough construction that provides strength you can count on in hard going.

To join the throng of owners making the most of these output features, see your International Industrial Tractor Distributor about Bucyrus-Erie DOZER-SHOVELS for T-6, TD-6, T-9, and TD-9 crawler tractors! Bucyrus-Erie Company, South Milwaukee, Wisconsin.



See Your **INTERNATIONAL** Industrial Tractor Distributor

76T47C

Tractor Equipment

Do it the DOZER-SHOVEL Way!

Equipment you ought to KNOW ABOUT

Single Rear Tires

Manufacturer: International Harvester Co., Chicago 1, Ill.

Claims: Single rear tires and wheels, designed to facilitate off-the-highway movement of scra-

pers, wagons, and trailers, are now available for I-9 55-horsepower gasoline engine) and ID-9 (52-horsepower Diesel engine) industrial wheel tractors.

This new arrangement, the company stated, eliminates the objections voiced against dual wheels in off-the-highway hauling of trailing equipment. Dual wheels leave a ridge in the center of the track in soft ground and make it difficult for the single-tired equipment following in the track to stay in line.

The new, large 18.00 x 26 single rear tires, at the same time, give the same tread as the dual-tired units, as well as permitting maximum drawbar pull of 5.500 to 7,500 pounds, depending on ground conditions and amount of weight on drive wheels, the company stated.

General Truck Tire

Manufacturer: General Tire & Rubber Co., Akron, Ohio

Claims: The production of the premium C.D. truck tire, discontinued during the war, has now been resumed. Although there has been no change in design and depth of the massive tread of the tire, improved methods of rubber compounding and tire construction make the tread run longer, give greater puncture and cut protection.

The carcass of the tire has also been improved. Extra strength has been added to the body through new methods of construction and through the use of rayon cord fabrics.

The C.D. is being produced in all sizes from the C.D. 10, which replaces the 600-6 size, to the C.D. 52, which replaces the 11.00 x 24 highway size.

Rayon Conveyor Belt

Manufacturer: Raybestos-Manhattan Inc., Passaic, N. J.

Claims: With rayon cord plies for strength, this conveyor belt is designed to meet the needs of mechanized coal and metal mines, quarries, and limestone plants.

Some of the advantages claimed for the new belt are: easy troughing, fiber resilience, ability to utilize conventional idlers and pulleys.

Hough Payloader

Manufacturer: Frank G. Hough Co., Libertyville, Ill.

Claims: Completely new in design and construction, the Model

HF ¾-yard Payloader is now in production. The unit's features include: four speed fully reversible transmission for both digging and maneuvering, hydraulic bucket control, automatic bucket tipback, automotive type steering, and full visibility.

Bulldozer blade, crane hook, cab, and snow bucket are available with the Payloader.

Light Weight Pump

Manufacturer: Diesel Pump & Electric Mfg. Co., Glendale, California

Claims: Now in production, the Depco pump, a new type gasoline

engine driven unit, can be used on a variety of jobs. According to the manufacturer, their lightness and simplicity of installation make these units ideal for emergency installation at any place where power failure, fire, or drought may demand a supplemental pump which can supply a quantity of water with adequate pressure in a minimum of time. The pump is also said to be an efficient worker in the oil fields. It can be used there both as a water supply pump and as a general utility pump for wash down, etc.

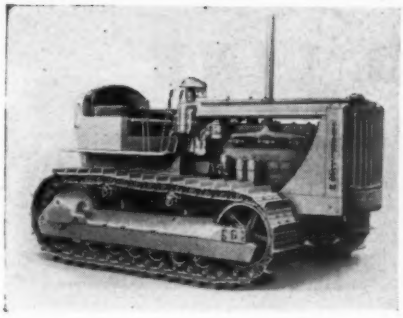
Depco pumps are available in sizes up to 2,000 gallons per hour capacity for deep well service; up to 3,000 gallons per hour for shallow well service; and up to 4,000 gallons per hour for conditions requiring larger volume at lower pressures.

Track-Type Tractors

Manufacturer: Caterpillar Tractor Co., Peoria 8, Ill.

Claims: Now in production are the new D4 and D6 track-type tractors. Built around two new Diesel engines, the four-cylinder D315 and the six-cylinder D318, the tractors bring marked increases in power to their present applications, offer higher working speeds on standard jobs, open new application possibilities, and result in increased earning capacity for the user, the manufacturer stated.

The D4 will develop 43 drawbar



horsepower, the D6 offers 65 drawbar horsepower—increased pull which means bulldozer loads moved at higher speeds and faster scraper hauling.

Portable Welder

Manufacturer: Harnischfeger Corp., Milwaukee, Wis.

Claims: Available as a stationary or trailer unit, a new self-powered arc welder, the P&H Model WN-200 Welder, is now on the market.

Both stationary and trailer units are securely mounted on all-welded frames of steel tubing and angle iron. According to the manufacturer, the stationary model is ideal for operation from trucks. A large lifting eye for crane use is provided. The trailer model, engineered especially for service in the field, has standard size pneumatic tires as regular equipment. It is provided with a ball and socket hitch and safety chains.

The two models are both equipped with P&H's square frame arc welding generators, having a Welding Service Range from 30 to 260 amperes. Arc response is automatic on all classes of work and with all types of electrodes.

Clutch Facing Assembly

Manufacturer: S. K. Wellman Co.. Cleveland, Ohio

Claims: New clutch facing and brake lining assemblies for D2, D4, D6, D7, and D8 tractors are now being manufactured. Featured in each assembly is all-metal design to eliminate oil rot, insure extra service life, minimize repair and adjustment.

Two-Wheel Scraper

Manufacturer: American Tractor Equipment Corp., Oakland 3, California

Claims: A new two-wheel hydraulic scraper designed for high-speed use with large wheel tractors. The scraper is being manufactured in three sizes: H52 (4.5 heaped yds.); H62 (5.6 heaped yds.); and H72 (6.9 heaped yds.).

Like other ATECO scrapers, these new models feature a low center of gravity, independent front apron, and a rear apron that

wipes the bowl sides clean as load is dumped.

A special hitch assembly eliminates the front trucks of the scraper and enables the pulling tractor to carry part of the scraper load. Travel is said to be limited only by the speed of the tractor.

Two-Wheel Tractor

Manufacturer: The Heil Co., Milwaukee, Wis.

Claims: According to Heil Officials, power, maneuverability, and effortless steering are the outstanding features of this new two-wheel tractor, called the "Heiliner." Even in heavy going and over rough construction roads, the machine is said to steer with the ease of a conventional passenger car. An engine-driven hydraulic pump furnishes steering power controlled by the steering head. The tractor can also be steered manually in case of failure of the power system.

It is claimed that the "Heiliner's" positive steering eliminates any possibility of "snaking" or "hunting," that its rugged swivel provides complete freedom of motion between tractor and wagon.

Tractor Attachment

Manufacturer: Hyster Co., Portland, Oregon

Claims: A combination of dragline, clamshell, and crane that retains the utility of a bulldozer-equipped track-type tractor is offered in the Hystaway tractor attachment.

Partial use of the bulldozer is possible with the complete Hystaway installed. Full bulldozer service is ready in one hour with the removal of all but the Hystaway transmission. The unit can be attached in two hours or removed in one, after the initial installation.

The Hystaway is designed for D6 and D7 "Caterpillar" track-type tractors.

Conveyor Belting

Manufacturer: Hewitt Rubber Division, Hewitt-Robins Inc., Buffalo 5, N. Y.

Claims: Maltese Cross conveyor and elevator belting is again in production after being withheld from manufacture during the war because of government restrictions on materials. Construction features of the belting include: special rubber compounds which supply maximum resistance to abrasion, weathering, aging, heat, and sun-checking; selected staple cotton reinforcements for added strength and reduced stretch; high flexing qualities, and resilient rubber frictioning between plies to assure maximum adhesion; scientific treatment of the belt carcass to prevent mildew; layers of elastic skim rubber for protection against shock load breakage.

Maltese Cross belting is offered in straight-ply, stepped-ply, and shock-pad construction. The belting also is available in a special construction suitable for handling hot materials.

Hewitt continues to recommend Monarch Neoprene belting where oil-resistance is an important factor, as Maltese Cross is not intended for this type of service.

Shots from the FIRING LINE

A. G. C. Points Way to Cost Stabilization

"The public should not be led to believe that there will be quick or drastic reductions in construction costs," concluded the governing and advisory boards of the Associated General Contractors at the recent meeting in Seattle.

Steps recommended to general contractors throughout the country included:

"a. Where it is the normal custom of the contractor, and to the fullest extent possible, firm prices should be quoted to the owner. Contractors should require firm prices from subcontractors, and sellers of materials and machinery.

"b. Fair and just wages should be paid to workmen, and all possible steps should be taken to encourage workmen to produce a day's work for a day's pay, to maintain wage rates for agreed upon periods of time, to settle disputes without stoppage of work, to eliminate wasteful practices, and to permit the training of adequate numbers of apprentices to supply additional skilled crafstmen for the industry.

"c. All possible steps should be taken to improve efficiency of management.

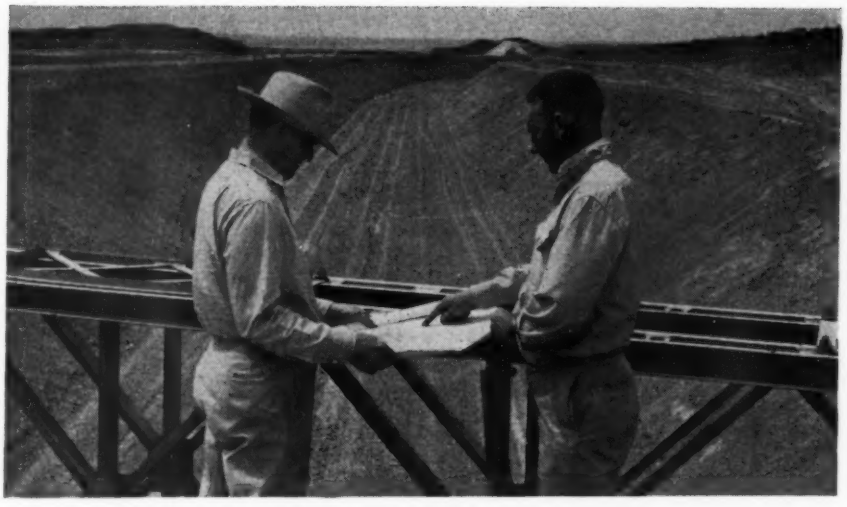
"d. Where possible, owners should be discouraged from demanding the completion of projects at speeds which require overtime work at premium rates of pay, or procedures requiring extra costs."

"Eliminate Uncertainties"

The Boards also called upon all organizations and individuals in the industry to cooperate to help eliminate uncertainties from the industry and to permit operations to be carried on as quickly, efficiently and economically as possible.

Another statement adopted by the Boards asserted that "when public works construction is carried out each year according to a long range planned program fitted to the country's needs, both government departments and contractors can organize to carry out the planned work efficiently. Such orderly development will tend to minimize inflation and depression periods."

The Boards then recommended to Congress that "appropriations be made on a continuing basis to permit advance planning, and orderly, economical construction of highway, flood control, river and harbor, reclamation, soil conservation, rural electrification, and other similar public works, and that all such work be executed by contract, with the contracts awarded to the lowest responsible bidder after due advertisement."



• Resident Engineer Philip M. Noble of the Bureau of Reclamation (left) and Supt. Roy F. Johnson of the Morrison-Knudsen Company check specifications while making a final inspection of excavation on the southerly 6½-mile section of the Main Canal on the Columbia Basin Project in Eastern Washington. The canal, 50 feet wide at the bottom and 120 feet at the top, will carry sufficient water for 800,000 acres of dry land in the Basin. It must be lined before it can be used. Morrison-Knudsen completed its $619,000 excavation contract last month in slightly more than a year — half the allowable time.

Road Building Programs Hampered by Low Salaries ARBA Survey Shows

Lack of trained personnel — because of low salaries — has hampered road building programs in 40 states, a survey just completed by the American Road Builders' Association reveals. Twenty-nine states reported they "could not compete with higher salaries in other engineering fields."

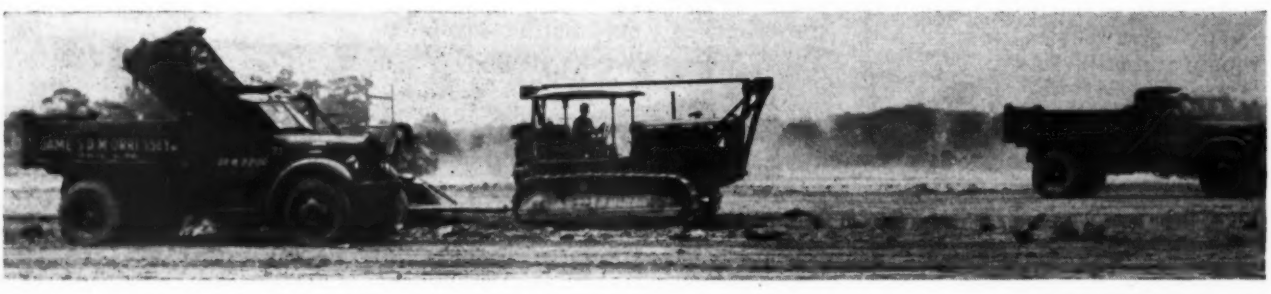
The findings of this study furnish strong evidence that the pay for highway engineering personnel of all classes in most of our states should be materially raised. "Present salaries now lag behind the salaries paid in comparable government work or those recommended by the American Society of Civil Engineers."

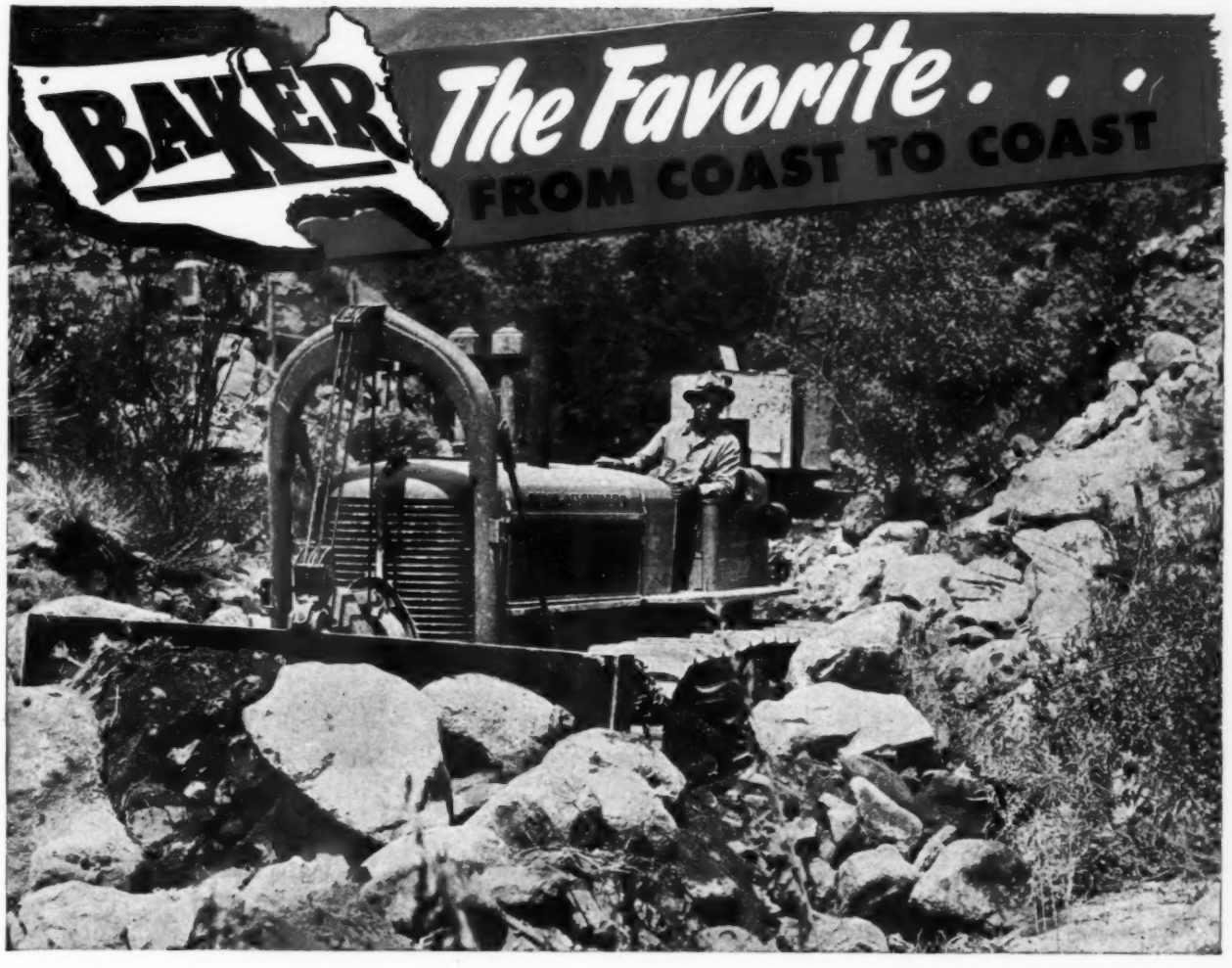
Illinois Needs 1000

Between 6,000 and 10,000 engineers are needed to carry out the 1947 construction schedule, the survey shows. States having the greatest need are Illinois, where 1,000 engineers are required, New York which needs 977, and California with a shortage of 500 engineers.

During the war, some 20,000 trained men left state highway departments to enter the armed forces or for war industries. Of this number, 59 per cent have returned to their old jobs, according to the survey. A wide variance is noted here, ranging from 5 to 10 per

• Sterling 6-yd. trucks are loaded with Euclid loader pulled by Caterpillar D8 tractor with LeTourneau bulldozer during grading work by James D. Morrissey at the Philadelphia Northeast Airport.





BAKER Cable Bulldozers are rapidly becoming the favorite among experienced earth-movers from coast to coast. It's the same story everywhere—BAKER—in the mines, quarries, oil fields, forests and tough construction jobs. It's Baker because of the many superior features and advantages that pay off in higher daily yardage, greater versatility and utility, more work hours per shift and reduced maintenance costs.

Now when you have the privilege of *selecting* equipment —it will pay you to get the facts on Baker Bulldozers and Gradebuilders, cable or hydraulic control. Write for literature or see your Baker-Allis-Chalmers distributor.

BAKER MFG. CO., SPRINGFIELD, ILL.

EASIER OPERATION — Less effort required to operate P.C.U. Brake

MOLDBOARD TILT — Bulldozer and Gradebuilder blades can be tilted in 4 positions

QUICKLY CONVERTIBLE — Bulldozer or Gradebuilder employ same superstructure, control unit and trunions

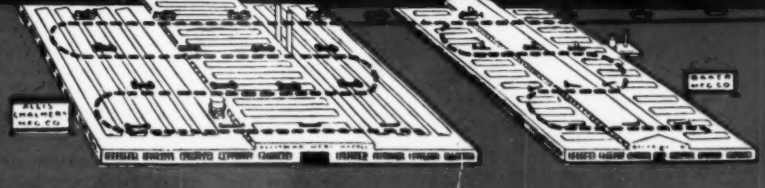
REDUCED CABLE WEAR — "Straight Line" Reeving Large diameter sheaves and drums

HEAVY DUTY CONSTRUCTION — Simple in design, extra heavy construction, all mechanism readily accessible

BAKER

BAKER They Go Together! A-C

"STRAIGHT THROUGH" ASSEMBLY LINE – ALLIS-CHALMERS TO BAKER TO YOU!



The modern Baker plant with its completely equipped fabricating, machining and blacksmithing shops adjoins the Allis-Chalmers crawler tractor plant. When you order an A-C tractor with Baker bulldozer or gradebuilder, your tractor leaves the A-C assembly line, crosses a narrow court and goes on the Baker final assembly line.

• Egg consumers are indebted to the producers of natural grit for high-quality eggs protected by sturdy shells. An important ingredient is finely pulverized granite dust, shown being quarried by the Davidson Granite Company (above), and by Stone Mountain Grit Co. (left), both of Lithonia, Ga. The International tractor with Bucyrus-Erie Bullgrader helps to produce Stonerno brand grit, while the Stone Mountain concern markets their product as "Stonemo."

cent in some states to 100 per cent in Montana and Rhode Island.

Questioned along lines of engineering procurement, 37 states answered that they had no arrangement with state engineering colleges for training returned GI's who had war experience in road or airport construction. Half of the states announced working arrangements with technical schools for securing their graduates.

Maine Tax Increases 50%

Gov. Horace A. Hildreth has signed into Maine law a bill increasing the state's gasoline tax rate from four to six cents a gallon. The tax increase will produce an estimated $3,500,000 a year in additional revenue for highway purposes.

As enacted, the gasoline tax increase measure provides for no allocation of the yield to municipalities. A similar gas tax increase bill, which would have allocated $1,000,000 of the proceeds to communities for road work, was killed earlier by the Maine House of Representatives.

Fuel Use Sets New Record

The amount of fuel consumed by motor vehicles operated on highways in the United States during the past year established an all-time record, according to figures compiled by the Public Roads Administration from gasoline tax collection reports submitted by state agencies.

The report showed that approximately 25,868,000,000 gallons of motor fuel were consumed in 1946, as compared with a total of about 19,340,000,000 gallons in 1945, an increase of 6,528,000,000 gallons, or approximately 33 per cent.

The greatest percentage of increase in gasoline consumption, based upon the number of gallons taxed at prevailing rates, was recorded in Nevada, which reported an increase of 16,494,000 gallons or 48.6 per cent above the 33,966,000 gallons consumed in 1945.

California led all States in the volume of motor fuel consumption, with a total of 2,436,430,000 gallons in 1946, an increase of 626,193,000 gallons or 34.6 per cent over the 1945 figure. New York was second with a total of 1,792,865,000 gallons consumed in 1946, which was 486,945,000 gallons or 37.3 per cent more than the total motor fuel consumption in the preceding year. Pennsylvania was third with a total of 1,653,352,000 gallons, an increase of 32.7 per cent, and Texas fourth, with a total of 1,546,335,000 gallons, an increase of 30.4 per cent above motor fuel consumption in 1945.

• Road Materials Company grade for a new CYO athletic field in Indianapolis, Ind., with their ½-yd. Bucyrus-Erie drag shovel.

• New to the Cleveland Municipal Airport are this new White Truck, shown being used in maintenance work, and one of the new 52-passenger DC-6's going into service for the United Airlines.

State Aid in Kentucky

Over eleven thousand miles of Kentucky county roads will be subject to state-aid under the $5,000,000 rural highway appropriation during 1947, according to a report by George H. Hailey, Director of the highway department's Rural Highway Division. All of the 120 county agreements have been completed for work during this fiscal year.

"The program for the state provides for maintenance aid on a total of 10,398.7 miles and construction aid on 1,079.5 miles," according to Kentucky Highway Commissioner Stephen Watkins. "Kentucky's rural county roads are in line for considerable improvement. All of the county fiscal courts have designated the highways for state aid and these have been accepted. In very few cases have we been delayed

and the whole program is now ready for materials purchases.

"Increased mileages have been made possible through an engineering analysis of the needs of each road accepted for state-aid. Roads are being maintained and constructed with direct relationship to the traffic needs on that particular road. We are all encouraged as to the future of Kentucky county roads. Two years of the new annual $5,000,000 appropriation and the splendid co-operation of county officers will produce tangible evidence that the job can and must be done."

Need $370 Millon for Oregon Road Reconstruction

Oregon State Highway Engineer, Robert H. Baldock, recently estimated it will cost approximately $370,000,000 to complete and modernize 7,200 miles of Oregon state highways and 1,400 miles of county roads. From 20 to 30 years would be required to complete the job, he indicated.

In the next two years the Oregon State Highway Commission proposes to spend $42,000,000 for construction with some reduction in revenues. At the end of 1945 the total investment in state highways was $257,000,000, with depreciation reducing the net worth to $186,000,000. Baldock estimated that $40,000,000 would be required to construct 1,400 miles of county roads which have been included in the federal secondary system.

An additional $75,000,000 will be required to build arterial highways through cities, $15,000,000 for improvement of rural sections of the newly designated system of interstate highways and $10,000,000 for development of state parks.

• Boyle County Fiscal Courts' ⅜-yd. Bucyrus-Erie shovel works in rock to grade bridge approach on a country road near Danville, Ky.

Kansas to Renegotiate Unfulfilled Road Contracts

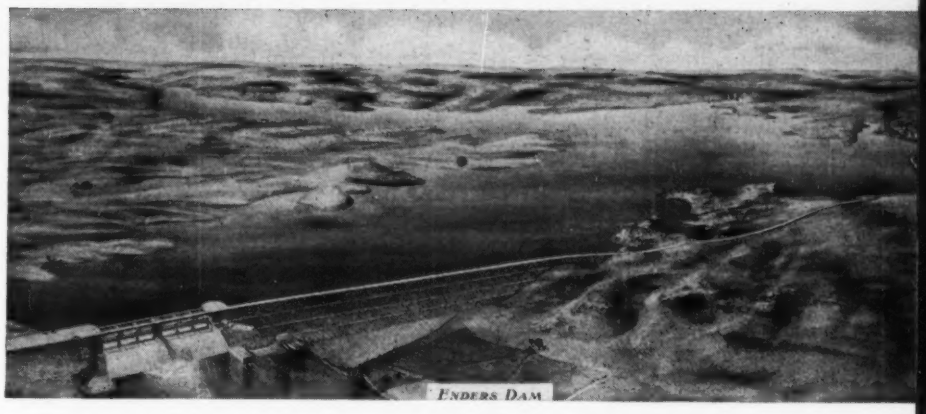
In an effort to get the work under way by adjusting prices upward in keeping with current building costs, renegotiation of contracts calling for $1,250,000 worth of highway construction in Kansas, long delayed by wartime building restrictions, has been undertaken by a bipartisan committee established by the 1947 Kansas Legislature.

The committee launched a study of contracts for 23 projects, on which contractors failed to resume work because of greatly increased costs above the original contract price.

Renegotiation was urged by the Kansas State Highway Commission, on the grounds that the government "stop order" on road building during the war had made it possible for contractors to fulfill their obligations in many cases. Some contractors said that to go ahead with the 1941 contracts at today's inflated prices would result in bankruptcy of their companies.

Gov. Frank Carlson urged that on any renegotiation the committee insist that the work be done on a strict basis of no profit to the contractors. This policy, he said, would allow those who

(Continued on page 418)



• Enders dam on Frenchman Creek (about 45 miles northwest of McCook, Neb.), now under construction by the Bureau of Reclamation, is an earthfill structure with a crest length of about 2,600 feet and a structural height of approximately 110 feet. An additional two-mile-long dike is to be constructed extending from the valley of Frenchman Creek almost to the town of Enders. The dam and dike will require approximately 1,500,000 cubic yards of earth. Enders dam and dike is part of the Frenchman-Cambridge unit of the huge Missouri Basin project and will provide for irrigation, flood control, silt retention, and recreational opportunities. Construction of the dam and dike is being performed by Wunderlich Contracting company of Jefferson City, Mo., under a $4,109,927 contract.

• Southern California's most important source of clay for bricks, building blocks and pottery is the Alberhill area in Temescal Canyon. Among the modern excavating equipment used in open-pit mines are a Bucyrus-Erie ¾-yd. Dozer-Shovel mounted on an International Tractor (shown loading an International truck) and a Hough front-end-shovel-equipped International wheeled tractor (loading mixing bin in inset). Both machines are owned by the Los Angeles Brick & Clay Products Company.

Cost-Cutters

INTERNATIONAL

Efficient Dirt Moving Hems in Old Man River

THREE International TD-18 Diesel Crawlers moved 150,000 cubic yards of black gumbo, sand and clay, in 60 calendar days. They were rebuilding a levee near West Memphis, Arkansas, on the Mississippi. Hauls were as long as 1200 feet, weekly yardage as high as 30,000. And they loaded at small borrow pits *without pusher assistance* to get capacity loads in 10-yard scoops. Only one additional crawler, a TD-14 with "Trail-builder," was needed to level the haul roads, dress levee to grade and spread dirt deposited by the TD-18's and their scoops.

Performance like this points up the superiority of International Diesels for earth-moving. Their 4-cycle valve-in-head engines provide dependable, economical power. Perfect weight distribution, adequate ground contact, rugged construction and extremely durable moving parts give them the ability to handle the tough earth-moving jobs with ease.

Their in-built, quick-starting system means that they waste no time getting to work. And the little time required for

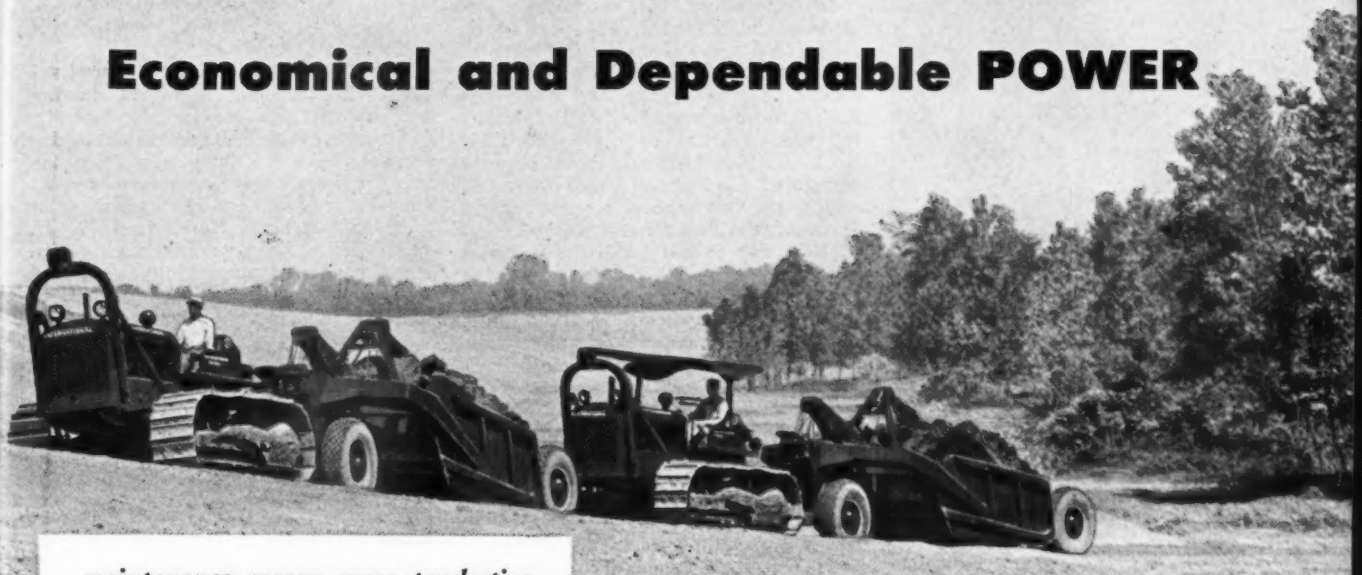
CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

INTERNATIONAL

at Work---

Diesel Crawlers

Economical and Dependable POWER



maintenance means *more productive hours* in every day.

Use International Diesel Crawlers and matched equipment on all your earth-moving jobs. You can get the latest information, facts and figures on International Crawlers, Wheel Tractors, Power Units and Diesel Engines now in production, from your International Industrial Power Distributor.

Industrial Power Division
INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago 1, Illinois

INTERNATIONAL HARVESTER

Industrial Power

(Continued from page 415)

desired to fulfill their contracts to proceed in good faith and avoid possible action for breach of contract.

The statute establishing the committee authorizes it to examine any contract awarded between May 14, 1941, and March 23, 1942. This would include about $7,000,000 in construction already completed. The committee could study those contracts and make awards to contractors who completed the work at a loss because of unexpected price rises. Several contractors were expected to file claims for more money.

In some cases it was impossible to start the work because of the government restrictions. Other construction was halted because of rapidly increasing prices. There were several cases, however, where contractors openly ignored their contracts with the state in order to take on the more lucrative "cost plus" work for the government in building airports and military facilities. The committee will have to decide which contracts should be renegotiated on the basis of hardship and sincerity on the part of the contractors and in which cases the state should demand the contracts be fulfilled.

Bill Would Prevent Lapse of Federal Highway Funds

Unexpended government funds for postwar road building will not lapse as required by law if Federal-Aid Extension Bill (H.R. 1874) is passed, according to Charles M. Upham, engineer-director of the American Road Builders' Association. He called attention to the unanimous approval just given the proposed measure by the House Sub-Committee on Roads. It is now before the Committee on Public Works.

Mr. Upham, in testifying before the sub-committee, pointed out that all state highway departments had been hampered by shortages of steel, lumber, labor, equipment and engineers. He stated that these shortages, together with lack of bids and excessively high bids, forecasted the restricting influences to highway construction in 1947. While salary increases ranging from 8 to 60 per cent had been granted in almost every state since 1942, he considered it doubtful that these increases were sufficient to attract trained personnel.

In concluding his testimony, Mr. Upham said, "Under usual procedure, federal-aid apportionments are made at the beginning of the calendar year preceding the fiscal year for which the appropriations are made. This permits highway departments to program their work and let contracts that may be completed during the fiscal year for which the appropriations are made. However, the Federal-Aid Highway Act of 1944 was passed while the war was still in progress.

"The construction season of 1945 was therefore entirely lost," the road builders' executive continued. "Meanwhile shortages and delays continued through 1946 and have not yet been fully removed. With the urgent need for highway construction so apparent, it would be disastrous to permit any highway funds to lapse at this time. This is especially true in view of conditions which have existed due to readjustments immediately following the war."

Thomas H. MacDonald, commissioner, Public Roads Administration, testified that only 69 per cent of the first year's Federal-Aid funds had been obligated. This means that 31 per cent of $500,000,000 must be programmed by June 30, 1947 or revert to the United States Treasury. Commissioner MacDonald recommended the passage of the bill.

Report Traces Rapid Development of Coal Stripping

Production from bituminous-coal strip mines has more than tripled in the past 10 years, due in part to the increasing use of light earth-moving equipment, Dr. R. R. Sayers, Director of the Bureau of Mines, announced recently in releasing a report on the subject.

Stripping coal with mechanical equipment has come a long way since the introduction of the first steam-powered shovel for removing overburden at a mine at Pittsburg, Kans., in 1877. In recent years, light earth-moving equipment has been successfully employed in recovering comparatively small areas of coal in mountainous terrain that

• Allis-Chalmers AD motor grader maintains road alongside a FIDO (fog dispersal) unit at the U. S. Navel Air Station, Eureka, Calif.

• International TD-14 diesel tractor with Bucyrus-Erie hydraulic bulldozer clearing and levelling an acre-plot for the production of orchids on the former Will Rogers ranch in Southern California. Although the propagation of orchids is usually a hothouse procedure, certain protected canyons have correct temperatures to allow growing the flowers outdoors under moss-covered woven-wire shades. The tractor is owned by Gibbs & Howell Construction Company, Beverly Hills.

• Carlton Contracting Company, Albany, is constructing a 6-mile access road to Allatoona Dam. After this $3-million road job is complete, the route will be used to transport rock from nearby quarries to the dam, which is being built across the Etowah river in Northern Georgia. At left is a Heil-bulldozer-equipped International TD-18 tractor. At right, Bucyrus-Erie equipped TD-18's work in a deep cut with sheepsfoot roller and bullgrader.

could not be mined economically in any other manner. Ever since scrapers powered by tractors were first reported in operation at a bituminous-coal strip mine at Elkville, Ill., back in 1936, strip mining with light mobile excavating equipment has made rapid advancement, the report states.

In 1937, strip mines produced 31,750,853 tons, or 7.1 percent of the Nation's bituminous coal. In 1945, production jumped to 109,986,865 tons—19 percent of the national total. During World War II, production nearly doubled to meet industrial demands. Utilizing light mobile equipment, many small areas of strippable coal in Maryland, Pennsylvania and West Virginia could be mined for the first time. In contrast to new underground coal mines, strip mines proved easier to develop, did not demand much war-scarce equipment, required fewer man-hours per ton of production and recovered more coal.

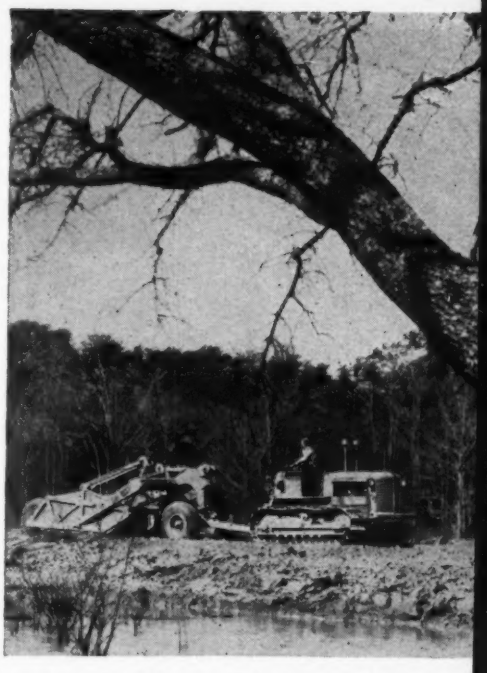
Tractor-Scraper Tests

Based on first-hand observations of strip mining operations in Maryland, Pennsylvania and West Virginia, the report states that light earth-moving equipment is particularly well adapted to stripping in hilly and mountainous areas. Bureau time studies of tractor-scraper operations indicated that the best results were obtained where the round-trip haul was 800 feet or less. Tractor-scrapers have also proved useful in building roads, restoring surface conditions, and in digging clay and soft shale in overburden up to 50 feet thick.

Prepared by Louis A. Turnbull, Joseph J. Shields, James J. Dowd, Edward L. Fish, and Albert L. Toenges, Bureau mining engineers with the Fuels and Explosives Branch, Pittsburgh, Pa., the report includes information on strip mining methods at the six mines visited, numerous photographs and charts, and a summary of operating data and time studies.

A copy of the publication, Report of Investigation 4033, "Use of Scrapers and Other Light Earth-Moving Equipment in Bituminous Coal Strip Mining," may be obtained free from the Bureau of Mines, Department of the Interior, Washington 25, D. C.

• Allis-Chalmers HD-10 tractor and 8-yd. Gar Wood scraper improve 15 miles of farm-to-market road between Malone and Campbellton, Florida.



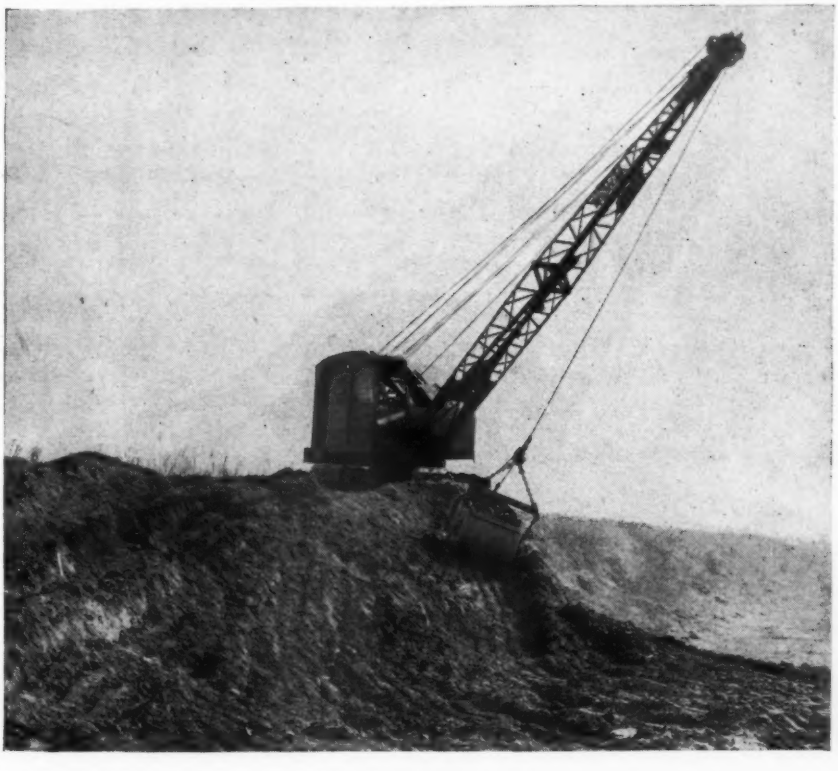
Oklahoma Legislature OK's Okla. City-Tulsa Turnpike

An act authorizing construction of a toll-financed express highway between Oklahoma City and Tulsa has been given final passage by the Oklahoma legislature.

The measure provides for the creation of a turnpike authority of five members with authority to issue bonds, build the four-lane, limited access highway between the two cities, operate and maintain it, retire bonds from the tolls and then turn the road over to the state highway commission when it has been paid for. Bonds issued shall bear interest at a rate not to exceed 4 per cent, shall be callable and shall not be issued for more than 35 years.

First step after setting up the turnpike authority will be to obtain a complete traffic survey to determine whether the road can be financed with self-liquidating bonds. Engineers pointed out the survey would be necessary before investors would be willing to purchase the bonds. Estimates of costs of the project have varied from $25,000,000 to $50,000,000. Engineers predicted the project could be paid out by tolls in 21 years.

• Dried sediment left by water is being cleaned from several miles of this irrigation canal in Kern County, Calif., by Giddings & Clemens' Bucyrus-Erie ¾-cu. yd. dragline. The Kern County Land Company canal is 40 ft. wide at the bottom, 12 ft. deep and 65 ft. across at the top.



Olen Heads Great Lakes to Atlantic Canal Advocates

Walter A. Olen, president of The Four Wheel Drive Auto Company, has been named Wisconsin vice president of the National St. Lawrence Association, according to an announcement by Julius H. Barnes of Duluth, president of the organization. Mr. Olen replaces the late Leathem D. Smith, of Sturgeon Bay, formerly president of the Sturgeon Bay Shipbuilding Corporation, who lost his life last summer on Green Bay.

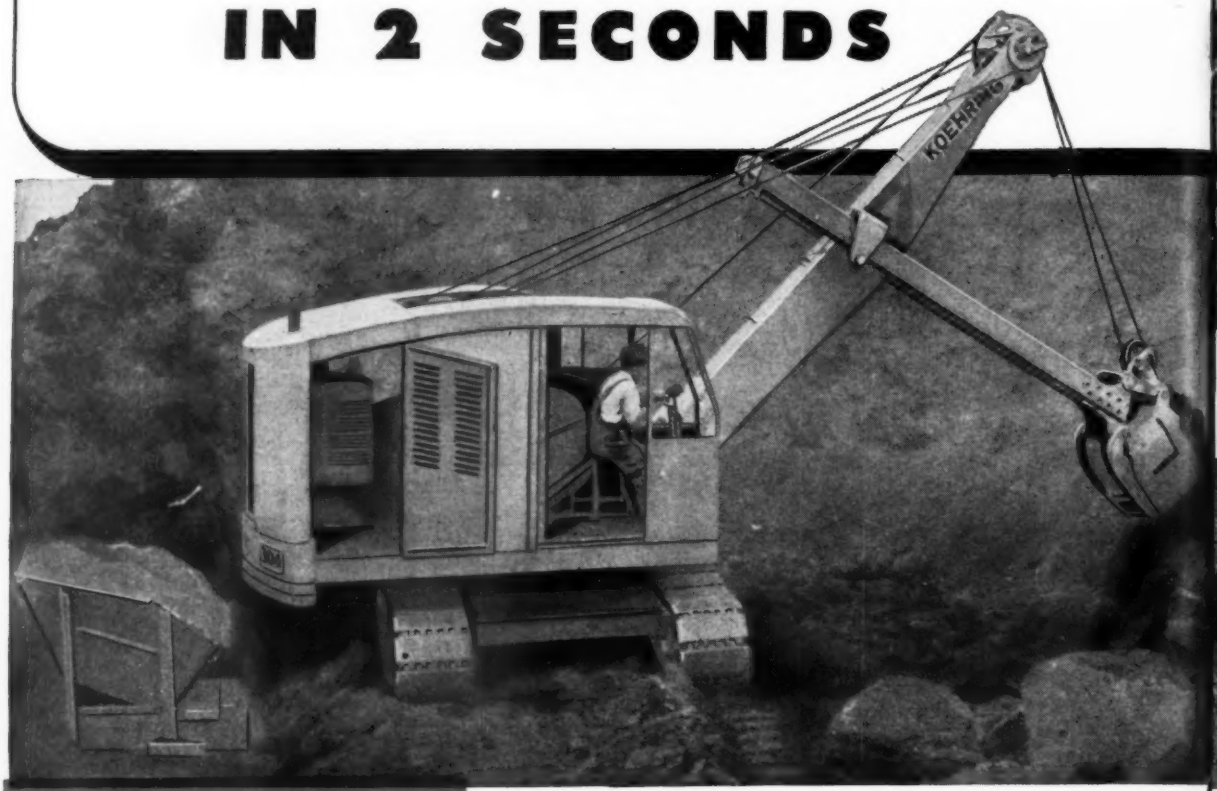
Long an advocate of the completion of the facilities of the St. Lawrence Waterways for handling large ocean going ships, Mr. Olen favors the completion of the canal and lock facilities in order to expedite the shipment of Wisconsin and midwest manufactured items and agricultural produce directly from the Great Lakes ports to seaboard cities and foreign countries.

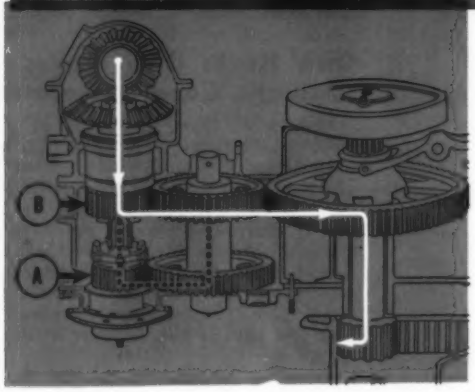
Completion of this project at an estimated net cost to the United States of 212 million dollars has been favored by six presidents of the United States of both major parties and by every department of government. Twice the

(Continued on page 422)

Shifts into high-speed

IN 2 SECONDS





How Speed Changer Works:

Speed selector lever in operator's cab moves sliding gear A up or down along splined shaft. With gear A in down position, you get standard swing speed. (Black line). With gear A in up position, its jaw clutch engaging floating gear B, you get high-speed swing. (White line)

On long-swing shovel jobs, quick shift steps up production 5 to 10%

Two-speed swing is a standard built-in feature of every Koehring 304 (¾ yd. as shovel). Speed selector lever in operator's cab speeds up swing 20% over standard at any time. High-speed swing pays important production dividends on many shovel jobs, particularly when swing radius exceeds 90 degrees.

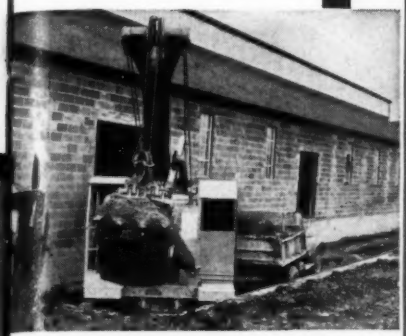
When you're feeding the hopper for the crushing plant, starting a cut, or whenever you can't get hauling units as close to shovel as you'd like, quick shift to high speed swing steps up production from 5 to 10%.

Changing swing speed takes only 2 seconds — just long enough to shift speed selector lever. Two-speed swing is standard on the Koehring 304 . . . you pay not a penny extra for extra production.

KOEHRING HEAVY DUTY

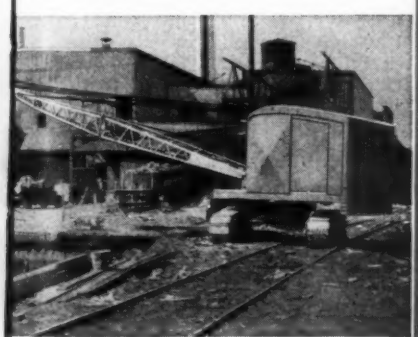
KOEHRING COMPANY

ecswing



In close quarters, trucks often can't be spotted for short swing. High swing speed of Koehring 304 cuts swing time approximately 20%, gets extra yardage every shift.

Highway work where shovel swing radius often is longer than 90 degrees, calls for high swing speed. On jobs like this, Koehring 304 can step up production 5 to 10%.



Shifting back to standard swing speed, when you're working Koehring 304 as clamshell or crane, takes only 2 seconds. You can select best swing speed for each front end attachment for any type of work.

MILWAUKEE 10, WISCONSIN

Johnson EXTRA TONNAGE at NO EXTRA COST

FASTER OPERATION

Large diameter sheaves, with fully sealed needle bearings, reduce friction power loss, deliver full power to cutting lips to provide faster, smoother operation.

BIGGER LOADS

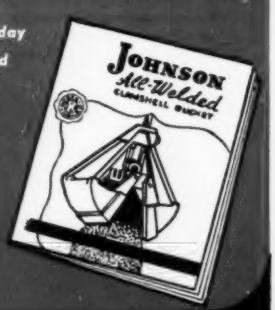
Because all-welded construction improves bucket balance and lowers center of gravity, Johnson bucket teeth dig in straight and deep. Deep, big bites get capacity load every time, in any material.

LONGER LIFE

Stronger and longer-lived because all-welded construction, by saving weight on other parts, permits use of heavier lips, heavier sides, heavier bottoms. Protector plate below lower sheaves keeps sheaves clean, prolongs sheave life. Hard manganese cutting edge, welded to heavy lips, actually gets tougher with use.

⅜ to 2½ yard sizes. General Purpose, Wide Rehandling and Heavy-duty Digging Type.

Write today illustrated catalog.



THE C. S. JOHNSON COMPANY

KOEHRING SUBSIDIARY CHAMPAIGN, ILLINOIS

(Continued from page 419)

Senate Foreign Relations Committee has approved it. President Woodrow Wilson, as a result of severe transportation shortages during World War I, initiated congressional investigation of development of deep water navigation from the Great Lakes to the Atlantic. President Coolidge was a strong advocate, considering this a national investment which "will be reproductive." In 1932, President Hoover said, "Its completion will have a profound favorable effect upon the development of agriculture and industry throughout the midwest." President Roosevelt once wrote, "I know of no single project of this nature more important to this country's future in peace or war. This organization will demonstrate to all the enemies of democracy that, however long the effort, we intend to outstrip them in race of production. In the modern world that race determines the rise and fall of nations."

War-Time Value

The subject has also been given recent support by the United States Army and Navy. In a recent recommendation, Secretary of War Robert T. Patterson, writing to the Secretary of State, transmitted the recommendation of the joint Chiefs of Staff to the effect that completion of the project would provide: Ship building and ship repair facilities located in a relatively secure area, capable of expansion and conversion of handling deep sea vessels which could be used for supplemental costal ship yards; an additional line of communication navigable by ocean ships which could by diversion of some cargo for overseas destination ease the strain during wartime on rail transportation and port facilities of the east and gulf coast; and a large source of cheap dependable power which could be generated without the use of coal or critical combustibles and without the use of crowded rail or highway transportation facilities. The Chiefs of Staff have stated that if the project had been completed it "would have been of material assistance in prosecuting the war."

This great seaway could also serve as a reserve route to be used in the event of interruption of other routes by enemy action, the Chiefs of Staff stated. United States Army engineers consider the inland St. Lawrence Waterways essential.

No improvement has been made for fifty years in the short stretch from St. Lawrence to Montreal where locks 250 ft. long and 14 ft. deep limit shipping, the proposed locks would be 850 ft. long, 30 ft. deep and 80 ft. wide. The U. S. Maritime Commission has urged improvement of these locks in the interest of the American Merchant fleet and shipboard workers are strongly in favor of it.

Completion of this water transportation between the midwest and the ports of the world would open vast new outlets to American agricultural and industrial production, Mr. Olen states.

• Engaged in a flood control project at Robinsonville, Miss., is C. W. Volmer's 15-yd. Euclid wagon and tractor, both on Goodyear tires. In background is Caterpillar D8 tractor with LeTourneau bulldozer.

Gasoline Tax Collections Reach All-Time High

Improving the position of the states to finance postwar highway construction programs, gasoline and motor fuel gross tax collections in the 48 states last year soared to an all-time record total of $1,137,000,000.

This figure, as just announced last month by the Federation of Tax Administrators, marked a 33.9 per cent increase over 1945 and a 13.7 per cent increase over the billion-dollar total reached by motor fuel taxes in 1941, the previous record year.

Contributing to the increase, along with the vast upsurge in motor vehicle use which followed the lifting of wartime restrictions, were increases in motor fuel tax rates by four states during 1945 and by two states in 1946.

California topped the list of state collections with a $79,100,000 total last year. Collections in Texas were $72,900,000, in New York, $72,500,000, in Pennsylvania $62,900,000, and in Ohio $61,800,000. Eight other states collected more than $30,000,000 each in gasoline and motor fuel taxes.

With a 78.9 per cent rise, Kansas led the other states in percentage increases over 1945 collections. Virginia was next with 46.4 per cent increase, while Idaho showed a 45.8 per cent rise. Florida, Iowa, Nevada, New Hampshire, Oklahoma, Oregon and Vermont all reported increases of more than 40 per cent.

Kansas, Idaho, Iowa, and Massachusetts all boosted gasoline tax rates 1 cent per gallon during 1945, making levies in those states 4, 6, 4, and 3 cents respectively. Since the new rates did not operate through the entire year, their full effect was not felt until 1946. Virginia raised its gasoline tax rate from 5 to 6 cents per gallon last year and Mississippi boosted its tax rate on motor fuels other than gasoline from 6 to 7 cents per gallon. Gasoline tax rates among the states vary from 2 to 7 cents a gallon. Increases have been enacted in a number of states by 1947 state legislative sessions.

• ⅜-yd. Bucyrus-Erie shovel loads to International trucks in ground leveling operations at site of new Hammermill Bond factory, Erie, Pa.

Oklahoma Has $35 Million for 18 Months' Roadbuilding

Oklahoma will have state and federal funds available for a $35,000,000 highway construction program between now and Dec. 31, 1948, it was announced by Gov. Roy J. Turner after receiving a detailed analysis of estimated revenue from State Highway Director H. E. Bailey.

It was pointed out that this estimate does not include a possible surplus from the general revenue fund which will be transferred to the highway department

A HABIT TO JOE...

"NEW IDEA" TO HIS NEPHEW

...YET BOTH WANT THE SECURITY your P.S. Plan Provides

HAVE YOU told all your new or recently hired employees about the benefits of the Payroll Savings Plan for the regular purchase of U. S. Savings Bonds? Wage earners, according to a recent nation-wide survey, want security more than anything else. They prefer security to big pay, soft jobs, authority, "success."

There is no surer way to this peace of mind than systematic savings. And what surer, safer, better means can your employees find than payroll allotments for U. S. Savings Bonds? Bonds that return $4 at maturity for every $3 they invest!

Your active support of the Payroll Savings Plan is an investment in employee contentment, in the citizenship of your community, and in the security of America's future. This is practical "employee relations" of the highest type and pays dividends of satisfaction to everyone.

Start a drive today for larger participation in the plan. Many employees may be unfamiliar with its advantages. If you want literature for distribution, contact your State Director of the Treasury Department's Savings Bonds Division.

New Savings Bonds Plan won't affect the P.S.P.

THE Treasury Department and the banks of America are making it possible for farmers, doctors, and other self-employed people to participate in "automatic" Bond buying by special arrangement with their banks. This extension of the Savings Bonds program is not a partial payment plan and is intended *only* for people who are not in a position to take advantage of the Payroll Savings Plan.

The Treasury Department acknowledges with appreciation the publication of this message by

Excavating Engineer

This is an official U.S. Treasury advertisement prepared under the auspices of the Treasury Department and The Advertising Council.

• Excavating to bury gasoline storage tanks for the Lakeland Oil Company, Lakeland, Fla., is John C. Dickerson Construction Company's ¾-yd. Bucyrus-Erie dragline.

at the end of this and the next fiscal year. Since any such surplus would be matched by federal funds, a $5,000,000 transfer would add $10,000,000 for construction.

The Oklahoma program will include about $21,000,000 for farm-to-market roads and about $14,000,000 for urban and primary road construction on the federal system. In addition, the highway department will spend about $17,000,000 for maintenance, administration, equipment purchases and emergency projects.

Medal to Engineers' Col. Lee

Colonel Richard Lee, Deputy Division Engineer, Corps of Engineers, Upper Mississippi Valley Division, whose headquarters are in St. Louis, Missouri, has been awarded the Legion of Merit Medal. The presentation was made last month by Colonel Clark Kittrell, Division Engineer.

Colonel Lee came to his assignment in St. Louis direct from overseas in the Western Pacific. It was for his assignment overseas that the citation was made which covers the period July, 1945 to November, 1946 for service in the Philippines.

The award cites Colonel Lee's meritorious service, outstanding leadership, and professional competence in organizing and directing a large construction force, and that he made a noteworthy contribution to the support of Engineer activities in the Western Pacific of which he was Chief Engineer. Colonel Lee, a native of Virginia, came to St. Louis in his present assignment in April of this year.

Increase Conn. Gasoline Tax

To provide additional highway construction funds, a bill increasing Connecticut's gasoline tax rate from three to four cents a gallon has been given final passage by the Connecticut Legislature and sent for signature to Governor McConaughy, who had recommended such action in his inaugural message.

It is estimated that the one-cent increase will produce about $8,000,000 additional revenue in the next two years, to be used in matching federal funds for highway construction.

Before completing legislative action on the bill, the State Senate rejected overwhelmingly an amendment which would have increased the gasoline tax by two cents a gallon. The amendment was offered by Senator Stanley Stroffolino, Norwalk Republican, who said his experience as chairman of the roads, rivers and bridges committee convinced him that a two-cent increase was necessary to finance adequately a superhighway program.

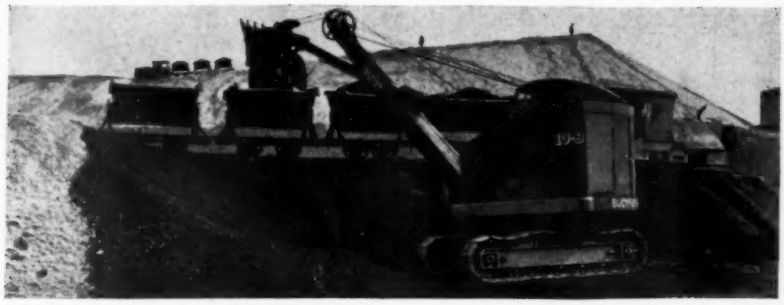
Indian Engineers Tour U. S.

After completing a course of lectures in the Washington offices of the Public Roads Administration, 21 highway engineers from India who came to this country in April to study American road-building methods, are spending the summer in the field, inspecting work on highway projects in various States.

Members of the deputation will visit about 25 States. They will return to Washington during the last week in August for final discussions with Public Roads officials before sailing for India.

All engineers in the deputation hold positions in the national, provincial or municipal governments in India, and will participate in the development of India's highway program. Their visit to the United States is sponsored by the Education Department of the Indian Embassy, in Washington, and is financed by the Indian Government.

This is the second course of lectures and field trips arranged by the Public Roads Administration for Indian engineers at the request of the Indian Embassy. A deputation of 22 public works officials passed three months in this country last year, studying highway construction methods and administrative procedures.



• ⅜-yd. Bucyrus-Erie shovel reclaims furnace residue for use in Natural Products Refining Company plant at Jersey City, N. J. 36-cu. ft. cars operate on 24-gauge track.

Red Mountain Tunnel Not Feasible Now Says Board

A report submitted recently to the Birmingham, Ala., City Council by the Red Mountain Tunnel Advisory Board held that a toll tunnel through Red Mountain is not feasible now because estimated revenues would be insufficient to finance the project. The advisory board said the proposed tunnel is not feasible until "future traffic studies and future use surveys demonstrate a substantially larger use of the tunnel can be anticipated, or until public funds can be made available to defray a substantial part of the cost."

(Continued on page 434)

• This Euclid loader, pulled by three Caterpillar D8 tractors, is being used by Arizona-Nevada Constructors to dig 26 miles of the Friant-Kern Canal. The assembly, which will do all excavation except rock cuts, makes four 12,000-ft. round trips each 8-hour day. Each pass is 18-in. deep, 3-ft. wide.

TKH=CQ

PLUS TECHNICAL KNOW HOW EQUALS CONSISTENT QUALITY

C. M. ZERR
CHIEF ENGINEER

Since graduating at Stevens Institute of Technology, he has specialized in all technical and research phases of wire rope making as assistant to Walter Voigtlander. Their technical department is the training ground for operation men, salesmen and technicians.

WALTER VOIGTLANDER
TECHNICAL DIRECTOR

For 43 years engaged in wire rope technology and research. Under his direction for 20 years, the Union Wire Rope laboratory and technical staff has become widely recognized as the foremost in the industry. From this continuous research comes new rope constructions, new rope making equipment and consistent quality.

Wire rope in itself is a machine. It functions as the steel tendons of many types of machines and to be good it must be made on the most modern of machines. Many of the machines in the Union Wire Rope plant have been either wholly designed or improved by our own mechanical engineers.

These precision machines must be minutely adjusted and maintained in perfect condition to produce uniformly high quality in all of the hundreds of different wire rope constructions. Many years of operating experience is contained in the Union wire rope making formula.

The most vital ingredient is Technical Know How. It is obtainable only from long years of training, experience and continuous research. Ours is an organization of specialists who devote their whole time to wire rope making. It is headed by top flight engineers and technicians who through research are constantly acquiring more know how for use in specifying the finest wire rope making steel; in making every wire rope drawing process improve each heat of steel still further; in constructing wires of the finest steel into stronger, tougher wire ropes, both ordinary and Union-formed (*pre-formed*); in the development of new wire rope constructions to whip jobs noted as rope killers.

NEAR YOU THERE IS A UNION WIRE ROPE DISTRIBUTOR AND REPRESENTATIVE CAPABLE OF APPLYING UNION "KNOW HOW" IN THE FIELD

Large and regular doses of "know how" are given Union Wire Rope's field specialists and distributing organizations. They know that Union Wire Rope must do a consistently better job on the job for which it is constructed. Each field specialist, each distributor is fully equipped with a thorough working knowledge of wire rope applications and is capable of making sound recommendations. Each is a substantial citizen contributing to the economic and social welfare of his community and is an important factor in maintaining the American way of opportunity and freedom unequalled anywhere in the world.

Backed by "know how" specialists, each Union Wire Rope distributor is out to earn and hold your good will.

union Wire Rope **Corporation**

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Send "Steel Tendons," the book that gives a pictorial trip through your modern plant.

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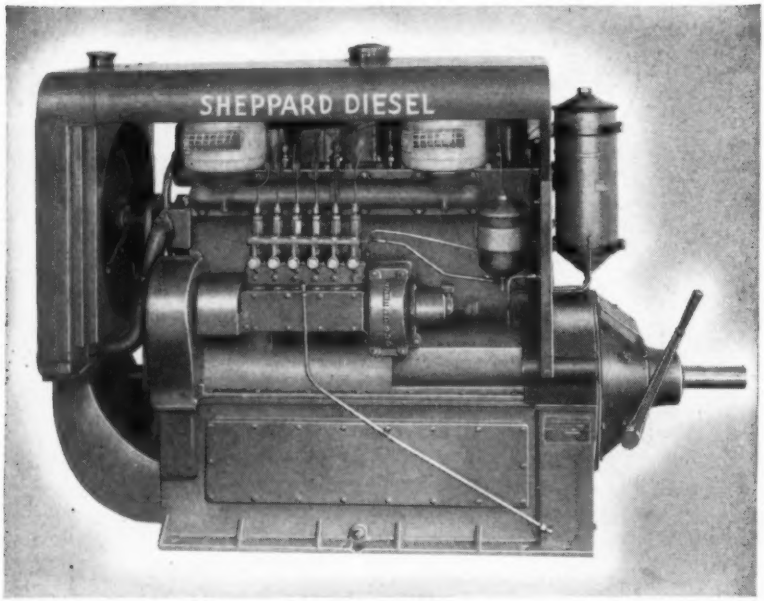
MORE *Actual* POWER



MEANS *Less* POWER COSTS

This 6 cylinder Sheppard Diesel . . . rated at 56 continuous H.P. at 1200 R.P.M. or 62 continuous H.P. at 1400 R.P.M. . . . will do the work of most 100 H.P. engines at a fuel cost of approximately 31c per hour when operating under full load.*

Why ?

Because Sheppard Diesels are rated by their actual *continuous* power output when operating with *all accessories.* This is in sharp contrast with most engine ratings which are based on the *calculated* performance of a *bare* engine.

Delivered complete with electric push-button starting, Sheppard Diesels are simple to operate, easy to service. Their *full diesel* operation reduces power costs still further by eliminating the maintenance of an electrical ignition system and a carburetor.

Write today for literature and specifications on the model 12 Sheppard . . . the Diesel that delivers *all* the power you buy!

R. H. SHEPPARD CO., INC., 34 Middle St., Hanover, Pa.

Generating Sets, 2,000 to 36,000 watts • Power Units, 3½ to 62 continuous H.P.

Sheppard DIESEL — DIESEL'S THE POWER . . . *Sheppard's the Diesel*

*Using 8½c gal. fuel oil.

New trade literature

Title: "Big Little Jobs"
Subject: Methods of utilizing small Diesel track-type tractors and Diesel engines and electric sets to obtain maximum efficiency on jobs which do not require larger models are descriptively outlined in this booklet, published by Caterpillar Tractor Co.

The 16-page color booklet shows "Caterpillar" Diesel D2, D4, and D6 track-type tractors working with straight and angling bulldozers, scrapers, loaders, scarifiers, discs, and harrows, tampers, and chisels on various types of construction jobs.
Where to Get: Caterpillar Tractor Co., Peoria 8, Ill. (Free)

Title: Size and Weight Restrictions
Subject: A booklet containing the road laws regulating trucks and trailers throughout the United States has been issued by the Four Wheel Drive Auto Co. The publication features the varying size and weight restrictions placed by each State.

Because of the fact that individual states may change their road restrictions during the year, the 1947 Guide is subject to corrections.
Where to Get: Four Wheel Drive Auto Co., Clintonville, Wis. (Free)

Title: Clamshell Bucket Bulletin
Subject: This 8-page illustrated bulletin describes the latest Hayward E-16 Rehandling Clamshell Bucket. It also tells how the bucket can be adapted for excavating, mud work, dredging, and other services. A chart lists bucket load capacities, weights, and dimensions in terms of various materials handled, together with figures on recommended wire rope diameters, reeving and closing lengths.
Where to get: The Hayward Co., New York 7, N. Y. Ask for Bulletin No. 697 (Free)

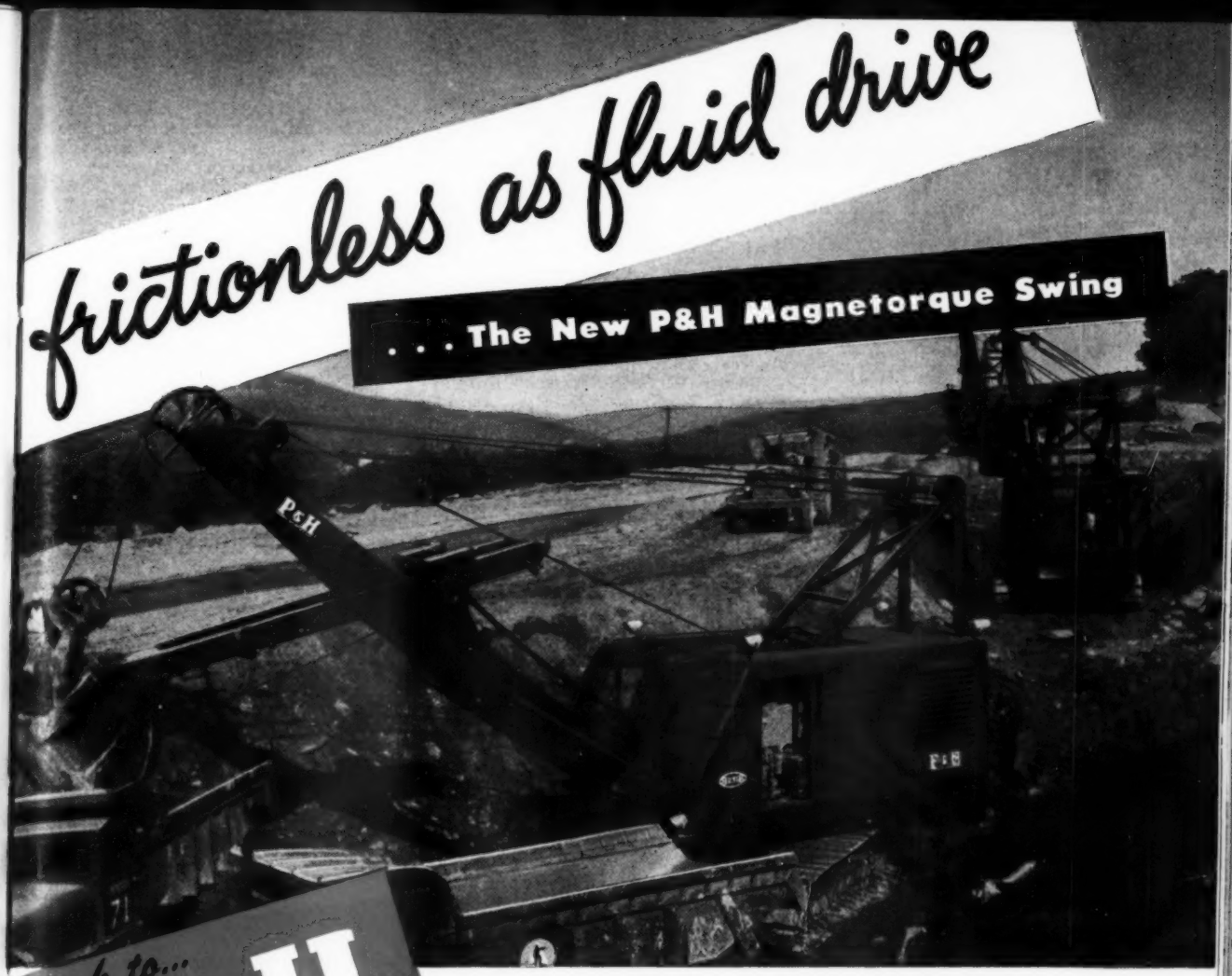
Title: Strip Mining Lubrication
Subject: An illustrated booklet describing the use of specifically recommended lubricants on earth-moving equipment. It tells of the problems engineers encountered when they were asked to specify the proper greases and lubricants for a 25-yard dragline —one of the largest ever built—whose machinery required the use of seven different types of lubricants.
Where to Get: Swan-Finch Oil Corp., New York 17, N. Y. (Free)

Title: Rental Schedule
Subject: The Associated Equipment Distributors' "Compilation of Rental Rates for Construction Equipment" includes rental rates for excavating and other equipment.

Published for the information and convenience of equipment distributors, contractors, and others engaged in

frictionless as fluid drive

. . . The New P&H Magnetorque Swing



look to...

P&H

for added values

Wherever you find the P&H Model 1055 on the job, you'll hear owners singing its praises for the new Magnetorque swing which marks the end of swing friction trouble and costly maintenance.

No Friction . . . No Friction Problems

The new Magnetorque solves the problems of old style swing clutches . . . by completely eliminating friction.

Without mechanical linkage . . . without friction . . . without wear — the Magnetorque transmits power for both swing and propel motions — and does it better.

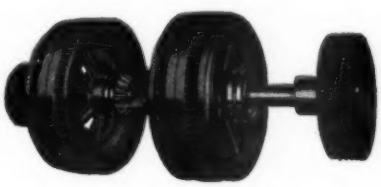
Makes Production Purr

Because it's smoother, faster, more responsive . . . because it permits quicker, more accurate stops and starts — the Magnetorque swing cuts wasted operating time, increases daily production and lowers yardage costs.

The Swing of a Lifetime

The Magnetorque is built to last the life of the machine. And during this time not so much as a single hour will be required for its repair, replacement, or maintenance.

It's one of the most important improvements in the past twenty-five years . . . users all over the country say so . . . performance has proved it. Write for complete information.



The New P&H Magnetorque Swing

Power for swing and propel transmitted by electro-magnetic forces. Operated by small generator on main engine; controlled from operator's station. Swing motions, slow or fast, have cushioned acceleration and deceleration. Because there is no friction swing, there are no friction problems. One more in the long list of P&H Added Values.

P&H

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CORPORATION

EXCAVATORS - ELECTRIC CRANES - ARC WELDERS P&H HOISTS - WELDING ELECTRODES - MOTORS

construction work, the schedule is subject to revision on the basis of representative samplings made among various distributors in different parts of the United States.

Where to Get: Associated Equipment Distributors, Washington 6, D. C. (Price $3.00)

Title: **Elkhorn Coal Analysis**

Subject: The United States Bureau of Mines has published the results of a study of the composition and carbonizing properties of Elkhorn coal in northeastern Kentucky to determine its capacity to produce coke, gas, and byproducts. Numerous tests were conducted to evaluate the chemical and physical properties of Elkhorn No. 3-bed coal and their effect on the yield and nature of the gas, coke, and byproducts. The results of these tests appear in the publication which was prepared by D. A. Reynolds, J. D. Davis, W. H. Ode, D. E. Wolfson, and R. E. Brewer.

Where to Get: Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Ask for Technical Paper 697. (Price 15c)

Title: **Dragline Bucket Booklet**

Subject: This 20-page illustrated booklet tells "how to get the most out of a Page automatic dragline bucket." It gives detailed information on dragline operation and describes buckets of various sizes and types.

Where to Get: Page Engineering Co., Chicago, Ill. (Free)

Title: **"Conveyors and Cranes"**

Subject: Various types of cranes and conveyors are described in this illustrated 357-page book by William H. Atherton, author of "Conveying Machinery" and "Hoisting Machinery." Arm elevators for packages, swing-tray elevators and conveyors, belt conveyors, derrick cranes, travelling jib cranes, dock and shipyard cranes, and a host of other units are thoroughly covered in the book. Besides describing the machines, Mr. Atherton also delves into speeds, applications, and methods of operation.

Where to get: Pitman Publishing Corp., Chicago Ill., and New York, N. Y.

Title: **Highway Statistics Bulletin**

Subject: This new bulletin, issued by the Public Roads Administration, presents a series of statistical and analytical tables on the subjects of motor-fuel consumption, motor-vehicle registration, State highway-user taxes, financing of State highways, and highway mileage for the calendar year 1945. The brief text highlights information of particular interest or significance in the tables.

Where to Get: Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. (Price 35c)

Title: **Acetylene Generator Catalogue**

Subject: A 22-page catalogue which lists and explains the complete line of Airco acetylene generators both stationary and portable. The stationary generators covered are the 300 lb. both single and double rated and the 500 lb. double rated. The portable generators described range in size from 15 to 50 lbs.

The catalogue also describes Airco oxygen and acetylene manifolds.

Where to get: Air Reduction Sales Co., New York 17, N. Y. (Free)

Multiple Rope
Power Arm
Dragline
The Leader
IN WELDED CONSTRUCTION
WELLMAN
Williams Type BUCKETS
Wellman pioneered in the welded construction of rolled steel buckets. Priceless experience, superior engineering and the finest type of construction guarantee you more satisfaction from your Wellman-built buckets.
SEND FOR BULLETIN
THE WELLMAN ENGINEERING COMPANY
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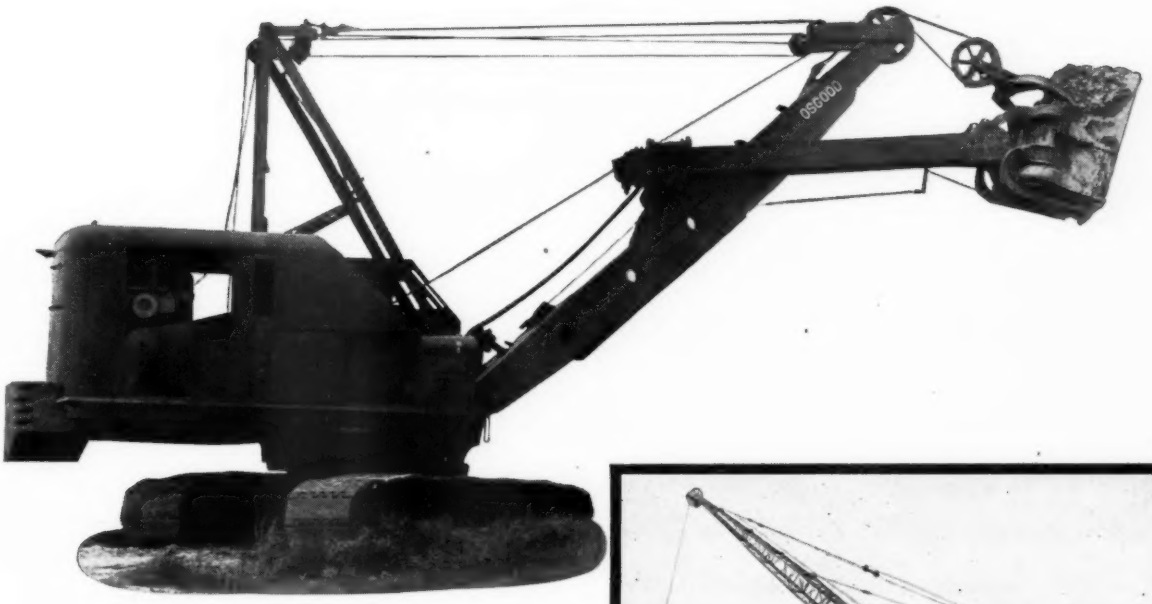
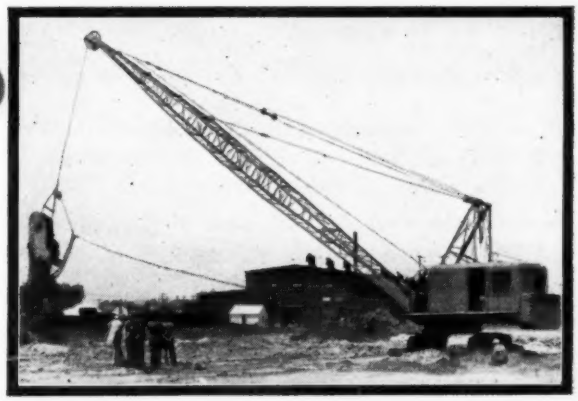
Built FOR THE *Big* JOBS!

The OSGOOD *Type* 100





SHOVEL • DRAGLINE • CLAMSHELL • CRANE

From crawler treads to point sheaves, the new OSGOOD Type 100 is designed and built to handle the big jobs. As shovel, dragline, clamshell or crane, the Type 100 will wade right into the toughest work you have and turn in a profit-making performance. Powerful and sturdy, the Type 100 is completely air-controlled, providing an ease of operation that means just as much production in the last hour of the day as in the first.

Air booster brakes and air-controlled steering contribute to the smooth performance of the Type 100. A conveniently arranged bank of hand levers and foot pedals control every operation of this new machine. Positive air control enables the operator to get the "feel" of this powerful unit instantly. Self-cleaning treads, oversize point sheaves, a new quiet-operating swivel-type fairlead and a host of other features of interest to every construction, excavating and material handling engineer are completely described in the new Type 100 bulletin. Get your copy now!

FREE BULLETIN READY NOW
Write today for your copy!

POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE OSGOOD CO. O-G THE GENERAL CO.
EXCAVATOR

MARION OHIO

DIESEL, GASOLINE OR ELECTRIC POWERED • ⅜ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES

Field Notes

(Continued from page 407)

on blocks, fill the empty tire 2/3 or 3/4 full with water. This is done by (1) connecting a hose direct from the pressure water system to the tire valve; (2) draining water through a hose from a barrel or tank elevated 5 feet or more above the upper level of the tire; (3) forcing the water into the tire with a pressure hand pump or pressure tank.

Protection against freezing can be obtained by adding proper proportions of calcium chloride. It does not deteriorate rubber and dissolves readily in water.

According to leading tire manufacturers, no objectionable effects are encountered when a liquid weight is used at tractor speeds as high as 20 miles an hour.

Courtesy the Gulf Oil Corp.

Temporary Sewer

Building codes of some cities require the contractor to tap the city sewer system and connect up all temporary showers and toilets which will be used by his workmen. As all sewer joints must be sealed by the use of cement, rubber, etc., this sometimes creates much added expense on the part of the contractor. A novel idea that abides by the codes but at the same time can save money for the contractor is the use of segments of rubber inner tubes to connect his sewage disposal system.

Shallow ditches are first dug, and the city sewer system is then tapped after the sewer pipes are laid. All joints are sealed with short strips cut from auto or truck inner tubes. The lengths of inner tubes are stretched over the joints as shown and make a perfect temporary seal. The joints do not leak and when the contract is finished, the ditch is opened, and the sewer is thoroughly flushed. A sharp hook is used to rip the inner tube slices from the sewer pipe.

Repairing Tread Cuts

Here is a new and improved method of repairing tread cuts—one of the most common types of injury encountered in the operation of truck and off-the-road tires.

Shallow tread cuts which do not penetrate into the fabric plies are not particularly detrimental to the life of a tire. The real danger, however, results from stones, gravel, other foreign objects that become wedged in the cut and continue to work into or through the tire by forces of tread flexing and road impact.

The new method simply involves probing the cut to remove all foreign material, then by use of a sharp pointed knife or rasp, trimming out or grinding around the cut to form a cone-shaped cavity to extend to the bottom of cut. After the cuts have been trimmed out, the tires can be continued in service without danger of impairment of service life or extension of the cut. Full advantage of this method of treating shallow cuts can be realized through frequent inspection of tires to remove stone, glass, and other foreign substances, and detection of the deeper, more serious cuts which require early vulcanized repairs to insure the operator obtaining maximum service life from tires.

In probing the tire, the angle of the skive or bevel should be no more than required (30 to 45 degrees), to prevent future wedging of foreign material in the cavity.

Courtesy Goodyear Rubber Co.

TAKE THE RED ARCH WAY TO HIGHER DRAGLINE OUTPUT

Don't let inferior bucket equipment hobble your machines . . . fit them out with Bucyrus-Erie Red Arch buckets and watch their output soar.

Strongly constructed, capable of years of hard excavating service, these buckets — in sizes from 3/8 to 25 yards — can bring faster digging, smoother carrying, and easier dumping to your job.

FASTER DIGGING is made possible by the proper angling of bucket teeth and cutting edges for more effective digging action and by the high arch which permits heaping loads on every pass.

SMOOTHER CARRYING is a result of scientifically designed bucket balance. This prevents bobbling . . . reduces spillage during the swing . . . enables Red Arch buckets to carry their full rated capacity in almost any material.

EASIER DUMPING comes naturally to Red Arch buckets. Their smooth, rounded inside surfaces offer no projections or corners for dirt to stick to . . . the high arch that lets material in easily, lets it out in a hurry too.

Check the Bucyrus-Erie Red Arch buckets now . . . let them prove to you that the Red Arch way is the way to higher output for your draglines and higher profits for you.

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

8R47C

riding high and easy

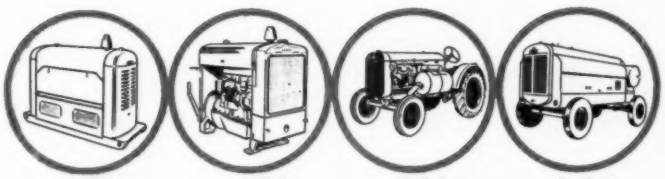
...the smooth, dependable, easy-holding power of LE ROI-CLEVELAND Sinkers reduces drilling costs by drilling more feet of hole per shift—for more shifts

Power for fast drilling in hard rock; power that rotates the steel in "fitchery" formations; power that cleans the holes and improves performance — you get all kinds of power in Le Roi-Cleveland 45-lb. H-10 and 55-lb. H-111 sinkers.

This power, besides producing more feet of hole in a shift, is easy to handle. It is smooth power that seems to flow like the air that drives these outstanding drills. "Kick-back" is reduced to such an extent that both the H-10 and H-111 are easy to run, even on long steels.

And, it is dependable power. The working parts are carefully designed to provide the strongest possible sections — they are heat-treated by men who have more than 40 years of heat-treating experience behind them — and they are enclosed and protected by durable drop forgings.

Put Le Roi-Cleveland sinkers to work, and take a big slice out of your drilling costs — shift after shift. See your Le Roi distributor or write for our latest literature.



Le Roi Engine-generator Set | *Le Roi Heavy-duty Engine* | *Le Roi 105 Tractair** | *Le Roi Airmaster**

LE ROI COMPANY

CLEVELAND DIVISION

Manufacturers of Cleveland Rock Drills

Cleveland 11, Ohio

LE ROI COMPANY, General Offices, Milwaukee 14, Wisconsin

NEW YORK • WASHINGTON • CLEVELAND • MILWAUKEE
BIRMINGHAM • TULSA • BUTTE • SAN FRANCISCO

RD-10

*Reg. U. S. Pat. Off.

(Continued from page 424)

Placing the cost of the proposed tunnel at $5,296,936, the board estimated that tunnel revenue would not exceed $270,000 a year, of which $83,000 would go for operation and maintenance.

The board suggested that the city, county and other interested municipalities "explore the financing of the north and south approaches to the tunnel, including property damage, by means of public funds, and then determine whether or not the tunnel proper can be financed by revenue bonds." The project is "entirely feasible as an engineering problem," the report said.

Allot $38 Million for Two-Year Maine Program

Final approval of a general highway fund totaling almost $38,000,000 for the two years ending June 30, 1949, has been given by the Maine Legislature.

It was estimated by Senator Harley D. Welch, Chapman Republican, chairman of the ways and bridges committee, that revenue would total more than $31,000,000, including $21,500,000 from the state gasoline tax, increased from four to six cents a gallon.

The highway budget earmarked $11,625,000 for maintenance and betterments of state and state-aid highways, $3,358,000 for bond retirement, $3,400,000 for snow removal, $1,600,000 for state-aid highway construction; $1,040,000 for the town road improvement fund, $1,625,000 for bridge construction, $880,000 for bridge maintenance, $418,000 for general administration, and $1,083,839 for state police administration.

The legislation provided that an amount not to exceed $5,300,000 might be apportioned from the unapportioned general highway fund surplus in the next two years to match federal funds available under the federal highway act of 1944.

Kansas Governor Urges Retention of Present Gas Tax

Retention without change of a 1945 Kansas law imposing an extra 1-cent gasoline tax with no exemptions for nonhighway uses was urged in a statement released by Gov. Frank Carlson.

At the same time he called for development of a long-range highway construction and financing program.

Expressing opposition "to action whereby the amount of our present highway revenues would be reduced," the governor's statement was expected to kill a movement for repeal or modification of the 1-cent tax. Previously, such rural organizations as the State Board of Agriculture, Farm Bureau, Grange and Farmers Union had gone on record in opposition to the tax because it collected on fuel burned in tractors.

"We have two more years to go in the three-year postwar program as set up by the national highway act of 1944," Governor Carlson said. "Under that act Kansas receives each year federal aid amounting to $10,740,000 to be spent for construction in the ratio of $5,660,000 for federal aid primary roads, $3,973,000 for federal aid secondary roads, and $1,107,000 for urban federal aid roads.

"Thus, Kansas has $32,220,000 to match for the 1946-47-48 highway years. An additional $5,909,000 of unused federal aid from the war years calls for an equal amount. The total three-year construction program, including federal aid and Kansas funds, comes to approximately $75,000,000.

"Out of our highway revenues must first be paid statutory expenses, such as county and township road fund, highway benefit district refund and other items, which total approximately $5,500,000. Then comes maintenance, operation, state construction, resurfacing, right-of-way and other expenses which will total from $10,000,000 to $12,000,000.

"Highway revenues, excluding the 1-cent gasoline tax just about takes care of these accounts. Therefore, if the 1-cent tax is removed, our construction program will virtually stop, including the new secondary roads program designed to bring our farms closer to markets, churches and schools by surfaced roads."

Not All Pleased

Governor Carlson declared he knew that the 1-cent tax "has not pleased some citizens, particularly in farming areas," but said "by its passage the means were provided to match the overall federal aid allotments for the postwar program. That program should not be interrupted."

Seeing a need for a long-range highway construction and revenue program, he suggested that the Legislature provide "for a highway fact-finding committee of representative citizens to study these problems, conduct the necessary surveys, and submit a considered, comprehensive report to the governor and the legislature in the 1949 session."

Award Levee Contracts in Arkansas and Louisiana

A contract for the construction of nine miles of compacted levee with appurtenances, along the Arkansas river near Dardanelle, has been awarded to Clyde O. LaPlant of Sikeston, Mo., on a bid of $88,500.

Construction is scheduled to start in 40 days, on a levee south of Morrilton, Ark., in which 280,000 cubic yards of compacted levee and appurtenances, will be completed. C. W. Vollmer and Company of West Memphis, Ark., was low bidder on this 13.5-mile levee, located along the north bank of the Arkansas river, wth a bid of

To increase the headwater at hydro plant, a Sauerman Slackline Cableway removes 80,000 cu. yd. of boulders and mud from 1,500-ft. section of spillway, piling spoil along bank.

SLASH YOUR DIGGING COSTS with SAUERMAN CABLEWAYS

Whatever your problem of material handling, your first consideration is to keep the cost low and use as little labor as possible. When you have a contract that requires digging deep and moving material a distance of several hundred feet or more to an elevated delivery point, there is no machine as satisfactory as a Sauerman Slackline Cableway. It digs, hauls, conveys and lifts in a continuous cycle with one operator. There is a size and type of Sauerman Machine to meet your specific requirement. Low initial cost — small power consumption — inexpensive maintenance.

Write for Catalog

SAUERMAN BROS., INC., 574 S. Clinton St., Chicago, 7

$57,120. The project is located in the Conway Levee District.

A contract for the construction of 215,000 cubic yards of compacted earthwork levee, just north of Alexandria, on the Red river, has been awarded the Charles W. Greeson and Son Company of Baton Rouge, La., on a bid of $49,858.50.

Another contract for levee work on Red river, 11 miles north of Alexandria, went to the Hough-Cowgur and Company, Saint Louis, Mo., on a bid of $104,785, for construction of 1600 linear feet pile clump dike.

Construction of approximately 1,400,000 cubic yards of uncompacted earthwork, will be done by the Atlas Construction Company of Waxahatchie, Texas, for $232,156. The location is in Concordia parish, on the Black Hawk-Bayou Concordia levee, in the Red River backwater area.

• Gilbert Clark's ¾-yd. Bucyrus-Erie dragline digs 3 x 10-ft. trench for storm sewer for Landers Packing Company, Denver, Colo.

"Privately Financed Housing Advancing"--Housing Bureau

More privately financed permanent homes and apartments were started throughout the Nation in the first five months of 1947 and more were completed than in any comparable period since the record 1920s. Information received from the office of the Housing Expediter in Washington shows that during the first five months of this year about 280,300 privately financed permanent homes and apartments were started and about 300,000 were completed. During the first five months of 1946, 276,000 homes and apartments were started and 98,000 were completed.

The Bureau pointed out that building materials production last year was not sufficient to support the large number of dwelling units and other construction started, with the result that home construction time in most cases was eight or nine months and sometimes longer, a factor which added directly to housing costs and prices. Materials are available this year, the report states, to support the present rate at which housing and other essential construction is being started, thus permitting completion of houses within three or four months and in many cases in less time. Resulting economies may be passed on in the form of lower cost houses.

"These significant housing achievements — record-breaking starts and completions — are being accomplished without distortion of our economy using a few but effective controls," according to the Housing Expediter. "We are getting more housing construction than we've gotten since the record 1920s. The keystone of this accomplishment is VHP-1, the construction limitation order which restricts unessential construction thereby preventing the drain of needed building materials away from housing.

"Under the housing program the value of private non-residential building has gone ahead at a rate higher than at any time in our Nation's history. Through the cooperation of American business, labor and the Government an outstanding job is being done. It would be impossible to solve within the scope of one short year, or even two, the entire housing problem which is the result of social and economic factors that have been at work for many years."

May Construction Drops 22% From 1946 Total, Report

Stimulated by a heavy volume of contracts for projects classified as publicly owned, awards for construction in the thirty-seven states east of the Rocky Mountains reached a total of $742,837,000 in May, and represented a gain of 23 per cent over April of this year and a drop of 22 per cent from May of last year, according to the F. W. Dodge Corporation.

Projects classified as publicly owned had a contract valuation of $302,053,000 and amounted to 41 per cent of the total of all contracts awarded during May, the Dodge corporation's analysis shows. The figures indicated that 22 per cent of nonresidential contracts, 14 per cent of all residential contracts and 85 per cent of all heavy engineering projects in May were for municipal, state or federal agencies.

Private Construction Less

Privately owned construction last month showed modest gains over April, but dropped 42 per cent from the volume reported for May of last year. Total volume of privately owned projects in May was $440,784,000 against $425,066,000 in April and $755,586,000 in May of last year.

Nonresidential construction, both publicly and privately owned, amounted to $235,899,000 during May, indicating an increase of 28 per cent over April and a decline of 19 per cent from May of last year.

Residential construction for public and private accounts combined totaled $254,085,000 in May, a drop of 1 per cent from April and decline of 45 per cent from May of last year.

Public works and utilities, mainly for public account, amounted to $252,853,000 during May representing a gain of 57 per cent over April and 28 per cent over the record for the corresponding month of last year.

Gains in the first quarter over the first quarter of last year equalized declines in April and May compared with these months of last year, to bring the total for the first five months of this year to $2,955,755,000, a drop of 6 per cent from the total for the first five months of last year.

• Some 80 per cent of china clay or kaolin produced in the U. S. comes from Georgia. One popular way of mining it is by means of shovels assisted by bulldozers. At the Georgia Kaolin Company are seen a 1½-yd. Bucyrus-Erie shovel (background) and an International TD-18 tractor with Bucyrus-Erie Bullgrader. The clay is trucked to a processing plant near Macon.

Bearing Industry Offers Standard Numbering System

A standardized numbering system for ball and roller bearing dimensions was presented recently to the American Standards Association by the Anti-Friction Bearing Manufacturers Association.

The new code, presented by H. O. Smith, executive secretary of the Association, calls for a common means of identifying types, sizes, tolerances, modification of internal design and lubrication of standard ball and roller bearings to meet all the requirements of users. This new identification system utilizes a combination of figures and letters alternately, said to be flexible enough to take care of future changes in design, tolerances, lubricants and separator materials and is semi-descriptive rather than a dead code.

(Continued on page 438)

Biggest Tin Mining Dredge . . .

Below are listed the principal suppliers of the major items of purchased machinery used in the dredges "Stuyvesant" and "Roosevelt":

Hull and superstructure	Tampa Shipbuilding Co.
Jitney winches	American Hoist & Derrick Co.
Screen, jig & monitor pumps	Worthington Pump & Machinery Corp.
Bilge & priming pumps	Labour Co.
Slurry pumps	Denver Equipment Co.
Hydraulic giants	Joshua Hendy Iron Works
Hydraulic ejectors	Pemberthy Injector Co.
Farval lubrication system	Farval Corp.
Manganese liners — bars and other manganese exclusive of buckets	American Manganese Steel Div.
Manganese buckets	Taylor Wharton Iron & Steel Co.
Lilly controllers	Logan Engineering Co.
Jigs	Pan-American Engineering Co.
Concentrating tables	Deister Concentrator Co.
Classifiers	Deister Machine Co.
Samplers	Galligher Co.
Cross flow classifiers	Denver Equipment Co.
Air Compressors	Worthington Pump & Machinery Corp.
Rubber lining	U. S. Rubber Co.
Fire extinguishers	Pyrene Manufacturing Co.
Diesel generator sets	Cooper-Bessemer Corp.
Jacket water & sea water pumps	Ingersoll-Rand Company
Lubricating oil coolers and jacket water coolers	Ross Heater & Manufacturing Co.
Centrifuges	DeLaval Separator Co.
Fuel oil & lubricating oil transfer pumps	Viking Pump Co.
Auxiliary diesel electric generator sets	General Motors Corp.
Electrical equipment	General Electric Co.
Wire rope	American Steel & Wire Co.
Power cable	Simplex Wire & Cable Co.
Electric hoists	Shepard Niles Crane & Hoist Corp.
Chain hoists & trolleys	American Chain & Cable Co.
Piping	Crane Co.; Lancaster Iron Works, Inc.
Overhead traveling cranes	Mannino, Maxwell & Moore, Inc.; Chisholm Moore Hoist Corp.

(Continued from page 401)

ging ladder was secured in position well above the water line, with all buckets removed and stowed aboard the dredge. The main deck houses enclosing the engine room and machine shop were provided with watertight doors and plate closures over all windows and other openings. Plating which would offer undesirable surfaces to storm winds was removed from the sides and roof of the treatment house and from the upper houses enclosing the ladder hoist machinery. The pilot house was fitted with temporary galley and living quarters for the 8-man crew, and necessary safety equipment such as life boats and rafts was installed. Exposed motors, chutes, sluices and various items of the treatment plant were stowed and secured within the machine shop, and canvas covers provided for exposed motors which could not be stowed. All cranes and hoists were securely chocked to prevent any motion, and a V-shaped bulwark 10 feet high was built across the

ARE YOU LOOKING FOR A DIGGER?

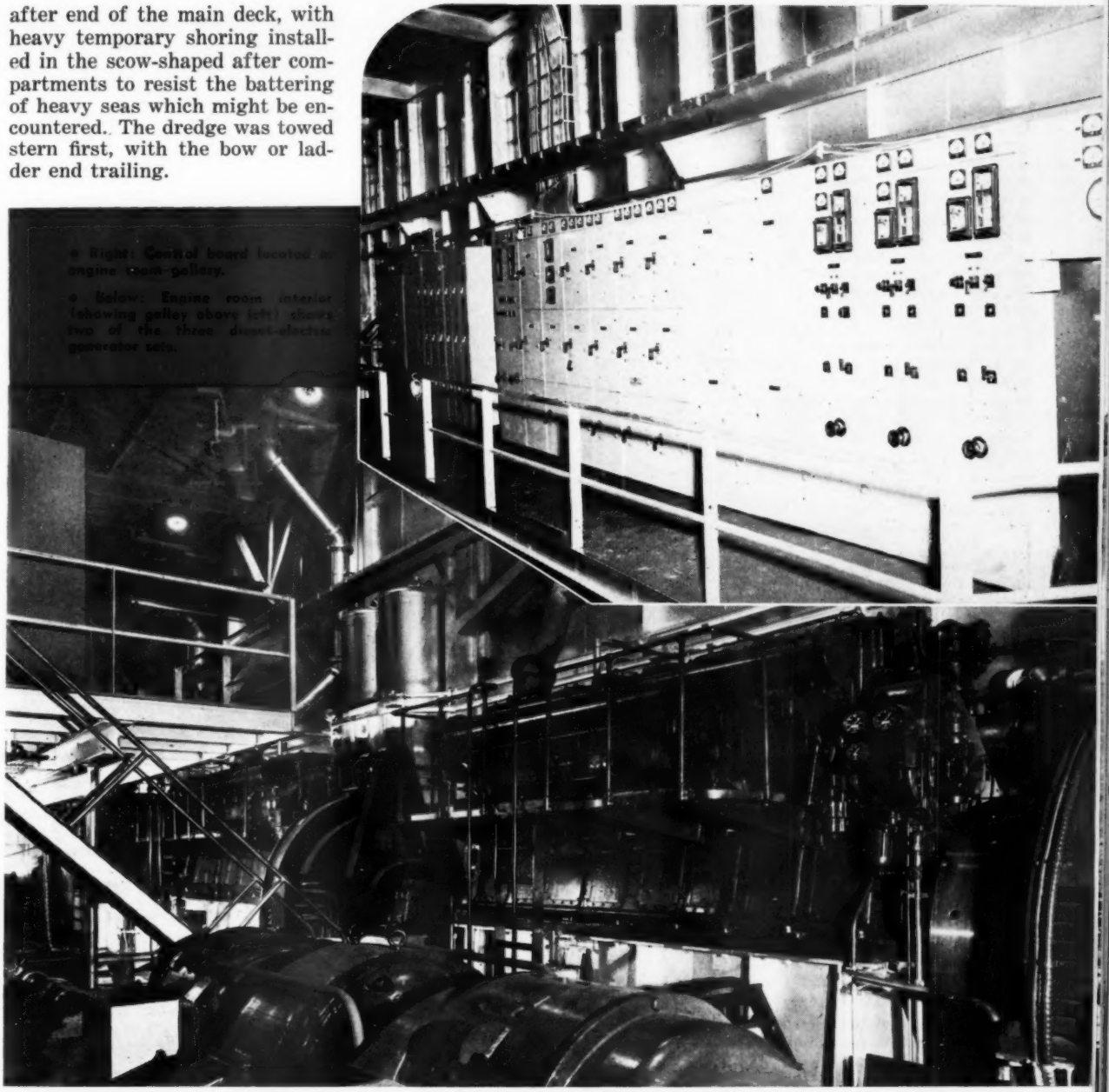
In Blaw-Knox two-line lever arm type you'll find both round and square nose dredging buckets with capacities from 1½ to 7 cu. yds. All of them are built for underwater work—tough, long wearing and dependable. For complete data *write for Catalog No. 2076.* You can select *exactly* the bucket you need from pictures and data in this book.

BLAW-KNOX DIVISION
of Blaw-Knox Company
2074 Farmers Bank Bldg.,
Pittsburgh 22, Pa.

FOR PROPER BUCKET SELECTION →

BLAW-KNOX CLAMSHELL BUCKETS

after end of the main deck, with heavy temporary shoring installed in the scow-shaped after compartments to resist the battering of heavy seas which might be encountered. The dredge was towed stern first, with the bow or ladder end trailing.



10-TON CULVERT SECTIONS

are "MADE TO ORDER" *for this*

ROGERS TRAILER

The broad, sturdy deck of this Rogers trailer readily accommodated four huge culvert sections. This 40-ton load was swiftly and easily transported to the construction location.

Write for the catalog illustrating a complete range of sizes and types.

ROGERS BROTHERS CORPORATION
136 ORCHARD STREET ALBION, PENNA.

EXPERIENCE *builds 'em* PERFORMANCE *sells 'em*

Shots

(Continued from page 435)

Mr. Smith pointed out that the industry's new numbering system permits the expression of more variable descriptions in terms of 4 digits, whereas the Army-Navy numbering system, which grew out of the war, is not only less flexible but must resort to the use of 12 digits since its system is basically a numerical one.

In a bearing designation such as the code 25BC02, it was explained that the 25 indicates that the inside diameter of the bearing is 25 mm.; BC is a code designation for single row radial non-loading groove assembly; and, finally, 02 indicates the series of the bearing and its outside diameter and width. Wherever more specific information is required such as seals, cages and lubricants, code letters and numerals are added. Under the Army-Navy system the 25BC02 bearing would be identified as 111X02502.

Mr. Smith revealed that the industry's new numbering system was used in its ball and roller bearing specification manual published in October, 1942, and was adopted by the Society of Automotive Engineers for inclusion in the SAE handbook first issued in 1943.

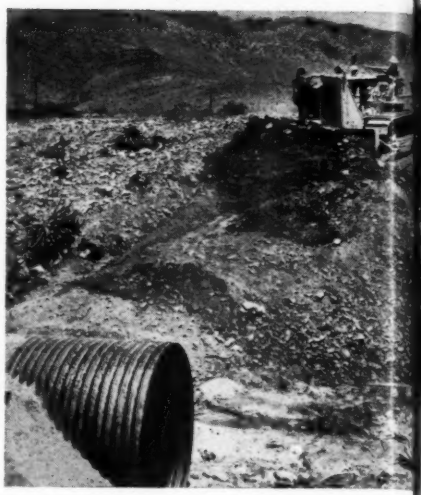
In presenting the industry's proposal to the American Standards Association, he pointed out that during the period of transition from the use of individual manufacturers' identification codes to adoption of the industry's standard coding, it will be necessary for both codes to appear on individual catalogues and packages.

J. T. Callaway Points to Need for New Rural Roads

"More and better rural roads—and immediate improvement for many of those we have—are needed to give farmers better marketing facilities," J. T. Callaway, president of the American Road Builders' Association, declared in a recent statement to agricultural leaders in Washington.

"Good rural roads are partners the farmer cannot get along without," Mr. Callaway said. "In the past year, such roads played a tremendous part in bringing the total income of American farmers to 27 billion dollars—an all-time high. Rural roads are the farmers' way to market; and to one municipal market alone, farmers each year bring 108,000 truck loads of produce. This is later transported over highways to 539 communities in 29 states."

Rural road travel last year reached 170 billion vehicle miles, according to the Public Roads Administration, and farmers are the largest single group of road users. "Some country roads are not much better today than they were in 1904 when only 410 trucks carried produce for the entire nation. Yet today 1,600,000 trucks transport agricultural produce. And half of our farms are not served by all-weather roads at all."



• Packard Construction Co. of Phoenix, Arizona, uses Caterpillar D8 tractor and bulldozer, with LeTourneau rooter to loosen rods in cut and backfill around iron culvert on re-aligning of four miles of state highway between Bisbee and Douglas, Arizona.

Good roads are the highways to farm prosperity, President Callaway continued. Better marketing facilities for the farmer mean increased income — for both the farmer and the country. Besides making the farmer's travel cheaper and quicker, a modern road system brings the market closer. Large central markets have sprung up in many sections to offer opportunity for farmers to sell closer home.

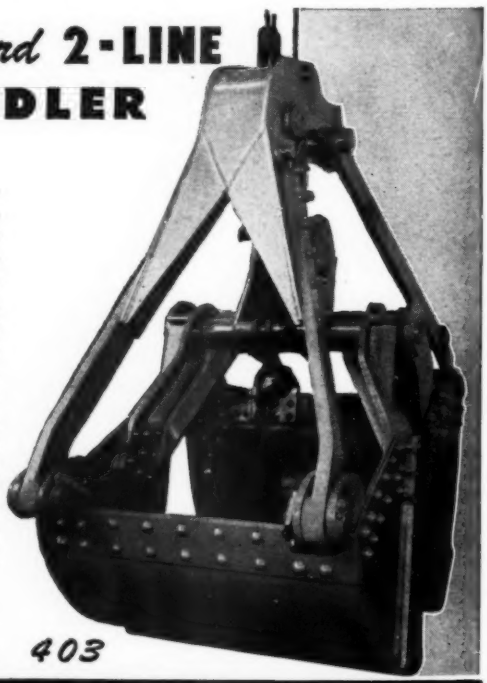
"With better roads making better marketing, the farmer increases production and income. No factor is more vital, therefore, to farm prosperity—and to the large influence of farm prosperity on nation-wide prosperity—than adequate farm-to-market roads."

"Parkways," New N. J. Film

Modern parkway planning is the subject of a new documentary motion picture in color now being filmed under the direction of the New Jersey State Highway Department. Emphasizing the necessity for a film of this type to enlighten the public on the need for these roads of tomorrow, highway commissioner Spencer Miller, Jr., points out that "New Jersey has the greatest traffic density in the world. This State, with its strategic location between the great metropolitan centers of New and Philadelphia, has traffic problems not to be equalled anywhere.

"It is important, therefore, that the people of New Jersey be informed through the employment of the dramatic and vivid medium of motion pictures of the benefits to be derived from a modern system of parkways and freeways in our state. While this new film

ERIE *Standard* 2-LINE REHANDLER



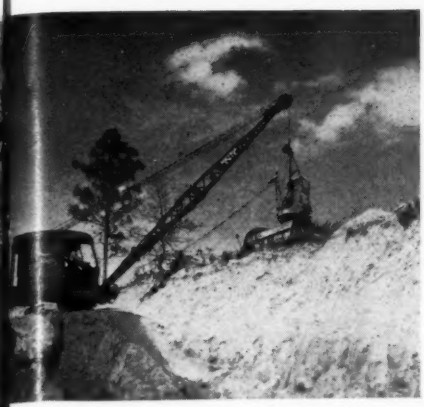
THIS compact Lever Arm Rehandler Bucket of normal proportions has ample closing power to fill to capacity in compact materials, and is so designed that the reeving can be adjusted to obtain maximum speed with capacity grabs in loose materials. We have reduced the "height open dimension" thus requiring minimum headroom, enabling you to pile higher and to discharge into higher hoppers. Lighter weight alloy construction provides more pay load (scoop contents) less bucket dead weight. To see this bucket in all detail write for bulletin 403.

● *Write for Booklet 403*

ERIE BUCKETS • *A Complete Line*

Erie Steel Construction Co., 477 Geist Rd., Erie, Pa.

BUCKETS • AGGREMETERS • PORTABLE CONCRETE PLANTS



• Digging and loading clay for road building near Avon Park, Fla., is this ½-yd. Bucyrus-Erie dragline owned by the Board of County Commissioners, District No. 2, Polk County, Fla.

is designed primarily for circulation within the boundaries of New Jersey, we are hopeful that its message will be of value to progressive-thinking people everywhere."

Currently titled, "Parkways of Progress," the new film will be in full, natural color and will be a sound picture with a scheduled running time of 20 minutes. It will be made available to 16mm users and is expected to be of particular interest to civic organizations, service clubs, colleges, universities, women's audiences, church groups and similar organizations.

The picture is scheduled for fall release and will be one of the featured exhibits of the National Convention of the American Association of State Highway Officials in New York next September.

Highways Vital Factor In U. S. Education

One out of every six of the nation's school children depends upon highway transportation to the classroom this year. The highways of the nation play an important role in providing educational opportunities for rural boys and girls. Some 4,706,209 bus pupils cover 1,913,661 miles of school bus routes to 40,837 schools daily, according to a census of Bus Transportation Magazine.

Ohio Has Most Busses

This year finds thirteen states operating more than 1,000 buses each. Only three states use less than one hundred. Texas has the largest number of bus pupils—334,590 of them. North Carolina is second with 321,750, and Ohio is third, with 280,000 pupils riding to school. Ohio operates the largest number of school buses—a fleet of 6,625, the census shows.

"School consolidations have been made possible by improved highways," according to Charles M. Upham, engineer-director of the ARBA. "More consolidations are needed to furnish specialized subject teachers, a wider curriculum, more vocational and cultural opportunities, and improved facilities for physical education for many rural pupils."

Approximately half of our rural roads are unsurfaced dirt roads and are impassable part of the year, the ARBA executive points out. This means lost days of school attendance in many sections as buses cannot always maintain their schedules. "Improving farm-to-market roads will spell increased educational opportunity in rural sections. To function effectively, consolidated rural schools must have a dependable system of secondary roads."

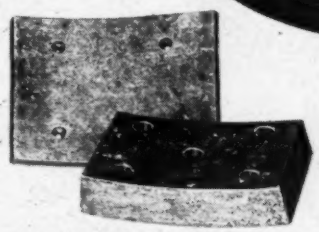
"Scrap Shortage Threatens Machinery Production"--AED

A nation-wide campaign to help alleviate the critical shortage of scrap iron has been launched by the Associated Equipment Distributors. The A.E.D. scrap iron drive was begun by an urgent request from President William A. Danner to the 1,000 distributor and manufacturer members of the association to send all of their scrap to the nearest scrap iron dealer.

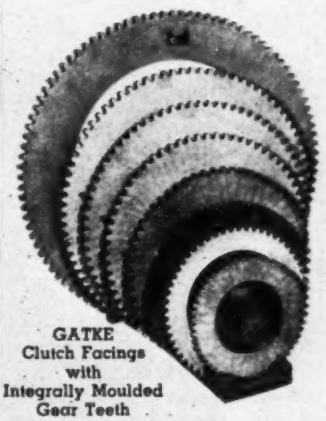
Declaring that the shortage of scrap iron threatens to seriously curtail the production of iron and steel and thereby causing a further slowing of deliveries of construction equipment, President

GATKE BRAKE MATERIALS for TOUGH JOBS

GATKE Moulded Swing Friction



Moulded Brake Blocks



GATKE Clutch Facings with Integrally Moulded Gear Teeth

Tremendous Power—no let down when things get hot.

Smooth Action—no grabbing.

Long Wear Life beyond comparison.

These are a few of many extras built into GATKE *CUSTOM-BILT* Brake Materials that help speed production and avoid delays.

RESULTS TALK. Just use GATKE Brake Materials on your toughest applications and compare performance with the best you ever had.

Whatever the application, send for the GATKE Recommendation.

GATKE CORPORATION

232 N. La Salle St., Chicago 1, Ill.

Danner urges the 45 local distributor associations to organize scrap iron drives.

Stating that the Scrap Iron and Steel Institute has informed him that most steel mills use part scrap iron and part pig iron to make ordinary grades of steel, Mr. Danner said, "Scrap iron may be either iron or steel. Since scrap iron has already been refined the use of it in producing new steel and iron castings shortens the process which effects an increase in the capacity of the steel mills.

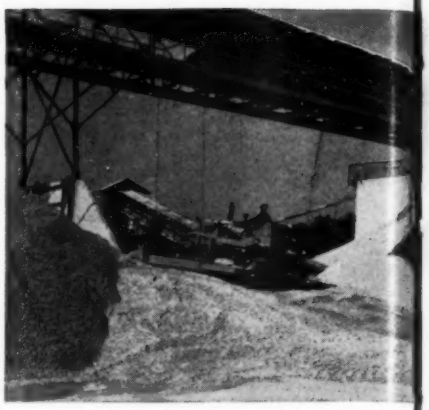
"A severe drain was made upon the supply of scrap to keep wartime production going at maximum rates. The scrap iron drives to meet the wartime needs put into circulation scrap which ordinarily would not have been used for several years.

"Large quantities of iron and steel and items made of iron and steel were lost from the normal chain of return to steel mills through tremendous shipments overseas and the ship sinkings during the war. Furthermore, the scrapping of old model automobiles and trucks has always furnished one of the largest sources of scrap iron, but inability to obtain new models has caused the continued use of old trucks and automobiles thereby greatly reducing the volume of scrap iron yield.

Capacity Not Adequate

"The capacity of steel mills is not adequate to meet the heavy demands for iron and steel from pig iron (produced from smelting iron ore in blast furnaces) to make up the deficiences created during the war, therefore, every effort must be made to augment the present stock pile of scrap iron," Mr. Danner said.

In the initial request to cooperate in the scrap iron salvage campaign, Mr. Danner told all A.E.D. members that "anything made of iron or steel is valuable as scrap—old construction equipment, parts, pipe, worn-out tanks, boilers, etc. Search through your equipment yards and other premises for such materials and get them on their way to the steel mills and foundries."



• Bucyrus-Erie Bullgrader on International TD-14 diesel tractor moves crushed stone to a hopper at Consolidated Quarries, Lithonia, Georgia.

GET THOSE HOLES DOWN FASTER . . .

. . . with Bucyrus-Erie drill bits. Made from special high-carbon steel billets by expert craftsmen, they hold their shape longer even in the toughest going. Forged, machined, heat treated, Bucyrus-Erie drill bits have proved themselves economical, fast-working tools in all kinds of ground formations. Extra-long body section makes possible more sharpenings — longer life. They're fast-working because their deep, wide water-courses mix sludge efficiently and keep pulverized material in suspension.

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For Bigger Payload Performance
...the logical first choice is HAISS HI-POWER. Unique for Sta-in-line reeving, out-of-the-muck sheaving. Weight placed for highest digging power, with closing ratios up to 7:1. Write for facts.
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Virginia Will Spend $4 Million More in 1947

The Virginia Department of Highways, now engaged in a "record postwar road-building program," has announced plans to put underway during the remaining months of 1947 more than $4,000,000 in contract work monthly "if satisfactory bids are forthcoming from eastern contractors."

Awards have been made thus far during 1947 for $15,000,000 in road work as the state carries out a $40,000,000 construction program.

With many of the "smaller and more troublesome" jobs out of the way, construction officials said the department is now turning its attention to major jobs ranging from $500,000 upwards.

Interested road-builders, the contract division said, will be supplied full details on request. To qualify to bid in Virginia, a contractor must submit a satisfactory financial and experience statement along with two affadavits.

Included in major projects to be let this year are $2,000,000 in remaining work on the Henry G. Shirley Memorial highway south of Washintgon, D. C., million dollar bridge jobs near Richmond and Portsmouth, a million dollar by-pass project at South Boston, and a number of half-million and three quarter-million projects in scattered rural and urban areas.

Reese Gets Clearing Contract At Hungry Horse Dam

A contract for clearing at the Hungry Horse dam site and a small part of the Hungry Horse Reservoir area in

Montana has been awarded by the Bureau of Reclamation to J. J. Reese, Columbia Falls, Montana, on his low bid of $408,320. The work is to be completed within 28 months after start.

The acres to be cleared are in the immediate vicinity of the site for Hungry Horse Dam and the site selected for excavation and stockpiling of concrete aggregates for construction. The work is situated on the south fork of the Flathead River, approximately 30 miles northeast of Kalispell, Montana.

The Hungry Horse multiple-purpose project, prior to its authorization by Congress, received the unanimous recommendation of the Committees of Irrigation and Reclamation of both Houses of Congress. The project works will regulate the Columbia River to develop power to meet the increasing demand in the area and to protect the agricultural lands in the Flathead Lake area against floods.

Studies on the size of the storage reservoir and on the other features of the construction are still under way. Recent considerations indicate that the maximum usable and feasible project features would involve a reservoir of 3,500,000 acre-feet capacity and a power plant of 286,000 kilowatt capacity at the Hungry Horse site. Until final decisions are reached, the program is based upon a reservoir of 1,500,000 acre-feet capacity, with a power plant having an installed generating capacity of 142,000 kilowatts. Studies by the Bonneville Power Administration show a need for all the power that can be produced on the project, and also for the additional power to be gained at downstream plants through the winter releases of water from the Hungry Horse reservoir.

Shoshone Project Proceeds With Lateral Construction

Construction of approximately 23 miles of the Ralston lateral and sublaterals on the Heart Mountain Division of the Shoshone project in Wyoming. has been placed under two Bureau of Reclamation contracts: one, calling for three miles of the lateral, awarded to the Askevold Construction Company, Missoula, Montana, on its low bid of $208,959, and the other, for construction of 20 miles of the lateral and sublaterals, awarded to Sharrock and Pursel, Casper, Wyoming, on their low bid of $253,091.

Five Division Project

The Heart Mountain Division, located near Yellowstone National Park, is one of five comprising the Shoshone project. The division includes a total irrigable area of approximately 39,500 acres of arable land, well adapted to diversified farming and livestock raising. The Buffalo Bill Reservoir, on the Shoshone River, 50 miles from Yellowstone Park with a capacity of 456,600 acre-feet, is the source of storage water for the entire project.

Construction on the division to serve 14,000 acres between Cody and Ralston

ALL IN A DAY'S WORK

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• LOADING FROM STOCKPILE AT 8 A. M.

10 A.M.

• DITCHING 30 MILES AWAY AT 10 A. M.

The SCHIELD BANTAM travels on the highway at normal speeds. Drives right up to the job and starts to work without wasting time. Use it as a dipper, trench hoe or dragline. The BANTAM handles stockpile material at a rapid pace, digs ditches in varying widths up to 10′ deep, and works wherever larger heavy weight equipment is not profitable. Simple, centralized controls. Full-circle design. Perfectly balanced for easy handling. Interchangeable booms. Wide selection of attachments for fast operations. Complete unit weighs 4 tons. Mounts on 6 x 6 truck or half-tracks.

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Waverly, Iowa

BANTAM

SCHIELD BANTAM 1/4-YARD PORTABLE SHOVEL-TRENCH HOE-CLAM-DRAGLINE

is now nearly complete. An additional tract of 18,500 acres to the north will be served by the completion of 3½ miles of main canal, a distribution system and a drainage system.

Veteran Homesteading

Practically all the land in the division is public land under reclamation withdrawal, and will be made available to homestead entry for veterans and others when irrigation water is ready for delivery. A beginning on this program was made last February when a drawing was held at Powell, Wyoming, for 7,720 acres of irrigated farms divided into 83 farm units. The land is now being awarded to persons whose priority was established in the drawing. All the farms are going to veterans of World War II who had a preference for the land. Of 499 applications filed, all except 35 came from veterans.

Major items of work under the contract awarded to the Askevold Company include 27,700 cubic yards of excavation, laying of 270 lineal feet of concrete pipe and corrugated metal pipe of varying diameters, placing of 322,700 pounds of steel reinforcement bars, and installing 6,500 pounds of gates and miscellaneous metalwork.

The contract with Sharrock and Pursel ,among other items of work includes more than 157,000 cubic yards of excavation, placing of more than 168,000 pounds of steel reinforcement bars, laying of nearly 2,000 lineal feet of concrete pipe and corrugated metal pipe of varying diameters, and installing nearly 19,000 pounds of gates and miscellaneous metalwork.

All construction must be completed within 14 months after the companies receive notice to proceed.

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Note 100th Anniversary of Modern Irrigation

The hundredth anniversary year of the beginning of modern irrigation in North America, is noted in the May issue of Reclamation Era, with an article "A Century of Irrigation." The article was written by Dr. John A. Widtsoe, a member of the Council of Twelve, Church of Jesus Christ of Latter Day Saints. He is a past president of the Utah State Agricultural College and of the University of Utah.

Irrigation was practiced on this continent in prehistoric days, as abundantly shown by the remains of ancient irrigation works, writes Dr. Widtsoe. Up to 1847, however, all irrigation, except for an occasional ranch, was for primitive people, conforming to primitive needs.

"The Mormon pioneers who entered the Great Salt Lake Valley in 1847, belonged to the civilization that Anglo-Saxon peoples had won for themselves through centuries of struggle," the article continues. "The gains of that civilization they must maintain . . . So within a day of their arrival, they led water from the City Creek to a patch of plowed ground, and planted a bushel of potatoes . . . They did not realize that when they made that miniature ditch that day, they created an epoch-making event in the history of the United States, and for many a far-flung country."

This was the infant beginning of the later mighty dams and canals "that now make the Western United States a fortress of strength in the union of commonwealths," the article says.

Sighted Over Water Glass

Dr. Widtsoe recounts some of the difficulties the pioneers had in building their irrigation canals. "There were few surveyors. Often the course of a canal was planned by sighting over a glass filled with water. Occasionally the results were disastrous, as when the end of a canal was higher than the beginning."

The article traces the growth of irrigation from then on. After 18 years, in about 1865, nearly 150,000 acres were under irrigation, 1,000 miles of canals had been dug, and nearly 65,000 "were living in fair comfort on the reclaimed land."

• One of the rigs clearing for a state highway near Albany, Ga., is Dougherty County's International TD-18 tractor with Bucyrus-Erie cable bullgrader.

Place Contracts for Bodcau Flood Control Project

Two Tennessee construction firms have been awarded contracts for construction of Bayou Bodcau flood control reservoir dam on a low bid of $1,112,075, according to Col. John R. Hardin, New Orleans district engineer for the Corps of Engineers.

The successful bidders were Forcum-James Company of Dyersburg, Tenn., and H. N. Rodgers and Sons Company of Memphis, on their joint offer. A separate bid is to be asked on closure of the dam. Total cost of the project will be in excess of $4,000,000.

The project is to be located at Dur-

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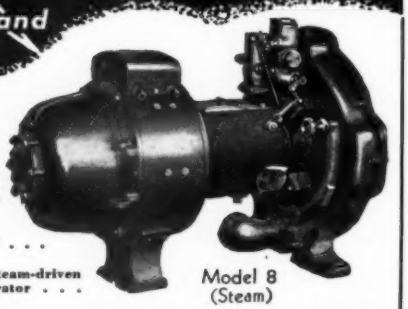

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• Decomposed granite, highly valued for "waterproof" road and airfield surfacing, is mined in Monterey Park, California, by J. A. Cook's International TD-18 diesel tractor with Bucyrus-Erie bulldozer. The machine works on the clifflike deposit, pushes the material over the edge and down to a valley where it is loaded to 20 trucks which haul direct to jobs in the Los Angeles area.

den Ferry, in Bossier parish, about 20 airline miles northeast of Shreveport. It will be a rolled-earth fill structure, about 11,500 feet long with a 4,000-foot concrete spillway. Completion of the work will take about a year.

Among the principal items of work are about 3,000,000 cubic yards of earthern dam construction, 600,000 cubic yards of drainage excavation, the concrete and steel work.

Humphrey-Ketchen to Build Payette Division Laterals

Construction of laterals and sublaterals on the Payette Division of the Boise project in southwestern Idaho has been placed under Bureau of Reclamation contract to the Humphrey-Ketchen Company, of Boise, Idaho, on its low bid of $251,381. The work covers earthwork and structures for the Conway Gulch Lateral and the "C" Line East Canal laterals and sublaterals, situated about five miles north of Caldwell, Idaho.

The Payette Division comprises about 53,000 acres of land situated on the divide between the Boise and the Payette Rivers, for which water will be supplied from the Payette River. More than 27,000 acres of the project lands are already being irrigated by gravity flow. The balance of the land is situated on higher ground, and irrigation must await construction of additional reservoir storage facilities and a pumping plant. The division will provide from 800 to 1,000 irrigated farmsteads.

Major items of Humphrey-Ketchen's work—to be completed in 10 months—include nearly 239,000 cubic yards of common and rock excavation; placing of 2,175 cubic yards of concrete, furnishing and handling 3,300 barrels of cement; placing of 140,000 pounds of steel reinforcement bars; laying of more than 12,000 lineal feet of concrete pipe ranging in diameter from 15 to 54 inches, and installing nearly 13,000 pounds of gates and miscellaneous metalwork.

New Canal Work on Deschutes Project

Construction of the earthwork, concrete structures and steel pipeline for the Willow Creek Siphon and wasteway on the North Unit Main Canal of the Deschutes project in Oregon will be done by Morrison-Knudsen Company, Inc., of Boise, Idaho, for $195,161, according to a recent Bureau of Reclamation announcement.

The work is situated about one mile northwest of Madras, Oregon. The North Unit Main Canal will be approximately 65 miles long, and will be the only waterway for delivering water to 50,000 acres of land. Forty-three miles of the canal, including two 3,300-foot tunnels, have already been constructed and are in operation, making water available for 17,000 acres of land. Completion of the Main Canal through Mile 57 and the wasteway into Willow Creek is needed to deliver water to the remainder of the initial 23,000 acres of farm land.

Will Create New Farms

The plan for Deschutes project, in addition to bringing the 50,000 acres under irrigation, also calls for a supply of supplemental water to another 50,000 acres in established irrigation districts, of which 46,000 acres are already being supplied. All of the new land to be irrigated is in private ownership, except for 2,700 acres of Soil Conservation Service lands, which will be made available to veterans of World War II. Many new farms will be created through subdivision of large holdings previously dry-farmed. The initial 23,000 acres to be irrigated, now consisting of approximately 100 dry farms will be sub-divided to make 307 new irrigated farm units. The remaining 27,000 acres, now in 150 dry farms, will be divided to make 360 new irrigated farm units.

Major items of work under the present contract include more than 10,000 cubic yards of common and rock excavation, placing nearly 7,000 cubic yards of backfill, laying of about 1,500 cubic yards of concrete in the structures, furnishing and handling 2,250 barrels of cement, placing 430,000 pounds of steel reinforcement bars, and installing 379,000 pounds of welded steel pipe and appurtenances.

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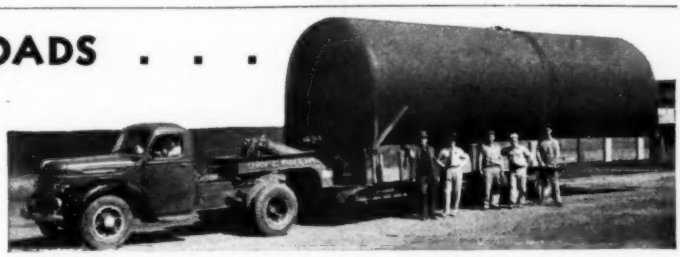
SAFE FOR UNUSUAL LOADS . . .

It takes a sturdy, well designed and properly constructed trailer to safely transport unusual and unbalanced loads.



Heavy duty trailers from 5 to 100 tons with any wheel or axle combination.

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NOT in the *Contract*

The little boy and his sister took the clock apart one day to see "what made it tick." After examining each part very carefully, they fixed the clock back together. During the night the clock began striking and struck 117 times without stopping.

The children's dad turned over, shook his wife and said, "Cindy, you better git up — durn if it ain't later than I ever knowed it to be!"

Cat skinner: "I'll bet you wouldn't marry me?"

So she called his bet and raised him five.

"How did you break your husband of staying out so late?"

"Whenever he came in late, I'd call out, 'Is that you Mike?' "

"How in the world did that help?"

"My husband's name is John."

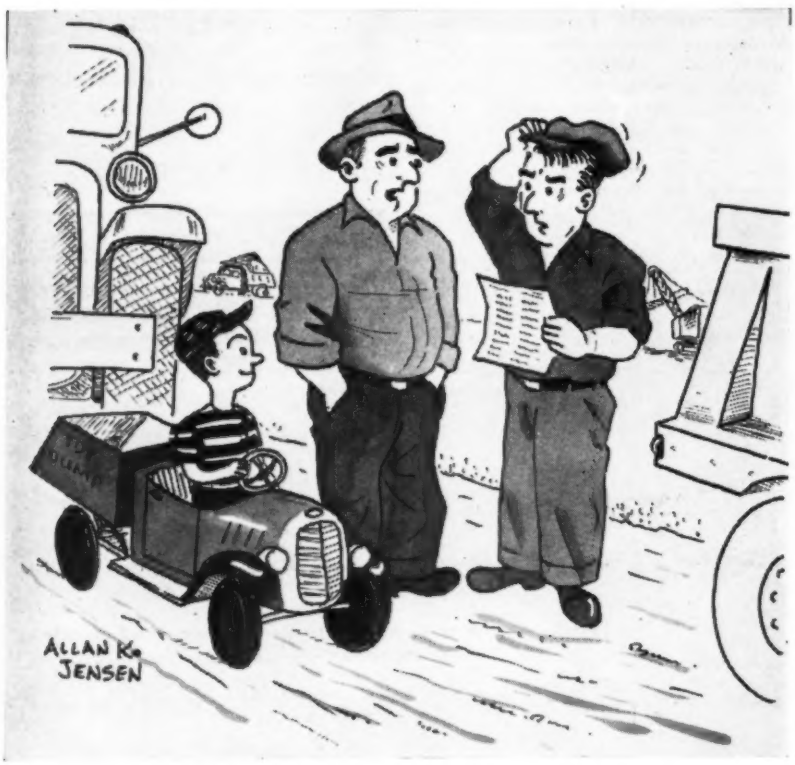
"Little boy, if your mother gave you a large apple and a small apple and told you to give one to your brother, which one would you give him?"

"You mean my little brother or my big brother?"

"Mr. Smith, I just heard your little boy is seriously ill from swallowing a half dollar. How is he today?"

"No change yet."

A very beautiful young lady went for a swim in a secluded spot, but neglected to take a towel with her. As she was standing on the bank letting the balmy breezes dry her, she heard a rustling in the bushes nearby. "Who's there?" she asked. A rather high-pitched voice replied, "Willie." Said the gal: "How old are you, Willie?" and the wee small voice replied, "79, darn it."



"I can't figure it out myself, but his name's on the contract!"

The tourist said to the Indian on the reservation: "What do you do all day?"

"Hunt and drink," replied the Indian.

"What do you hunt?" persisted the tourist.

"Sumpin' to drink."

"Your wife must be a remarkable woman. Married 20 years and you still call her 'Angel'."

"Yep. She's always up in the air, constantly harping on something or other, and never has a dern thing to wear!"

A lady contractor who has been fighting a losing battle against that middle-aged spread, was in a famous restaurant, where the manager wanted her to try his new potato dish, but she said, "No."

"Can you give me one good reason for refusing?" the man asked.

"Yes, but I'm sitting on it," she replied.

"Now is there any man in the audience who would let his wife be slandered and say nothing? If so, please stand up."

A meek little man rose to his feet.

"Do you mean," roared the speaker, "that you would let your wife be slandered and do nothing about it?"

"Oh, pardon me—I thought you said slaughtered."

"Is that girl's dress torn, or am I seeing things?"

"Both, chum, both."

Three absent-minded professors were so absorbed in conversation that they didn't hear the train come in or hear the conductor's "all aboard" call until the puff of the engine attracted them. Then they all rushed for the train and two of them scrambled on it. The third looked on sheepishly.

The agent, standing near by, said, "Too bad, mister, but you shouldn't feel so badly. Two out of three made it—that's a pretty good percentage."

"Yes," sighed the professor, "but they came down to see me off!"

A 'PROHIBITIVE' JOB MEETS ITS EQUAL . .

AT BEAR VALLEY mine an 1150-B strips deep overburden to uncover anthracite.

STRIPPING problems such as those encountered by the Bucyrus-Erie 1150-B walking draglines in the anthracite coal fields were considered insurmountable only a few years ago. Today the 1150-B's take the job in stride, removing the deep overburden at costs sufficiently low to permit economical recovery. With 180-foot booms and 25-yard buckets, these big walking draglines are more than equal to the job — a fact which reduces to simplest terms the major reasons why Bucyrus-Eries continue to be "years ahead."

FOR *Sustained* HIGH PRODUCTION AT LOW COST

ANOTHER deep-stripping job, this one is at Beechwood mine. As Bucyrus-Erie drills put down blast holes in the pit, an 1150-B walking dragline excavates prepared overburden, depositing it on a high bank where a 14-yard Bucyrus walker picks it up and casts it on over.

SOUTH MILWAUKEE — BUCYRUS-ERIE — WISCONSIN

Notes from the manufacturers

Bucyrus-Erie Co., South Milwaukee, Wis., announces the appointment of two new distributors in Tennessee for Bucyrus-Erie ⅜ to 2½ cu. yd. shovels, draglines, clamshell cranes, lifting cranes, and dragshovels. They are the Industrial Tractor & Equipment Co., Inc., of Nashville, and the Power Equipment Co., of Knoxville.

Industrial Tractor & Equipment Co., will serve the central Tennessee territory from the Tennessee River eastward to and including Picket, Overton, Putnam, White, Van Buren, Grundy, and Franklin Counties. Power Equipment Co., has as its territory eastern Tennessee, up to and including the counties of Fentress, Cumberland, Bledsoe, Sequatchie, and Marion.

Both distributors will also handle sales and service for the Bucyrus-Erie line of tractor equipment for International Industrial Tractors.

The Four Wheel Drive Auto Co., Clintonville, Wis., announces the establishment of sales headquarters in the Masonic Building, Duncan, Oklahoma, for its Southwestern sales region. The territory includes the states of Oklahoma, Texas, New Mexico, Arkansas, Louisiana, and Mississippi. William C. Merrill is Sales Manager for this territory.

General Tire & Rubber Co., Akron, Ohio, announces the promotion of Frank H. Sibley, formerly assistant manager of the company's Chicago branch, to the post of St. Louis branch manager. In his new capacity, Mr. Sibley will direct General Tire's wholesale distribution in a territory which includes parts of Kentucky, Illinois, Tennessee, and Arkansas as well as Missouri.

Caterpillar Tractor Co., Peoria 8, Ill., announces the promotion of J. M. Davies to Associate Director of Research in administrative charge of the department and R. C. Williams to Assistant Director of Research in charge of tractor and earthmoving projects.

The present Assistant Directors of Research, L. A. Blanc, W. L. H. Doyle, C. R. Maxwell, and C. R. Schad have been assigned additional duties in step with the expanding post-war necessity for advanced and efficient machinery.

The Salem Tool Co., Salem, Ohio, has named the following companies as distributors of its coal mining equipment, augers, rods, drill heads, bits, and McCarthy drilling machines: West Virginia Supply & Equipment Co., Clarksburg, W. Va.; W. W. Williams Co., Columbus, Ohio; A. T. Green Machinery Co., Pittsburgh, Pa.; Rish Equipment Co., Roanoke, Va., and Charleston, W. Va.; Diamond Supply Co., Evansville, Ind.; O. D. Lindstrom Equipment Co., Birmingham, Ala.

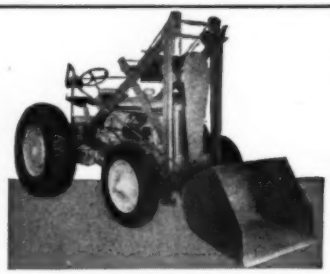
R. H. Sheppard Co., Inc., Hanover, Pa., announces the expansion of west coast distribution and service facilities for Sheppard Diesels. A new factory branch office has been opened in San Francisco. With Emil Riutta in charge, the branch carries the complete line of Sheppard Diesel power units, generating sets, marine engines, and auxiliaries. The staff includes factory trained service men.

R. G. LeTourneau Inc., Peoria, Ill., announces the appointment of Robert P. Nichols to the position of Assistant Domestic Sales Manager. In his new capacity Mr. Nichols will assist S. D. Means, the company's Domestic Sales Manager.

International Harvester Co., Chicago 1, Ill., has elected Giles C. Hoyt and General Levin H. Campbell, Jr. executive vice presidents.

At the same time, the company announced the retirement of William E. Worth, formerly executive vice president; the election of Robert P. Messenger to vice president in charge of Foreign Operations; the election of Ralph C. Archer to vice president in charge of the Farm Implement Division; the appointment of Michael

(Continued on page 448)



Front - End

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One Northwest crane model No. 105 with dragline bucket. Box 3224.

B-E 37-B shovel No. 20302.
B-E 44-B shovel No. 17960.
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Size 400 Vulcan pile extractor.
All in first-class condition. Box 3223

Walker draglines—diesel and electric, 5 yd. and 3 yd., 75 to 125 ft. bms.
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Dozer—Hi-Lift, '46 TD9 with B-E front.
Diesel and gas gen. units; Misc. engs.
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James Wood, 53 West Jackson, Chicago 4, Ill.

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New critical spare parts available for INTERNATIONAL 6 x 6, model M-5H-6.
L. M. Keller
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Two complete Thorton Tandem axle assemblies with heavy duty single speed case, each with 2 standard International K8 axle assemblies equipped with air brakes, 6.43 to 1 gear ratio and 20" spoke wheels. One new Feather Ride Tandem Suspension Unit for converting single axle semi-trailer to tandem. Eldon Miller Trucking Company, Iowa City, Iowa.

BUCYRUS-ERIE 43-B ser. No. 11632, 2 cu. yd. dragline, 60 ft. boom. Diesel. Overhauled. $9,000.
B-E. "Red Arch" 2½ cu. yd. dragline bucket. Like new. Weight 5500 lbs. $775.
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HENDRIX 3½ cu. yd. Dragline bucket. Weight 4,650 lbs. A-1. $800.
KIESLER gen. purpose N. 1 cu. yd. Clamshell bucket. Like new. $675.
MURPHY-DIESEL power unit ME-6.150 HP. Rebuilt. $3,250.
BUDA diesel power unit. No. 6LD1742. Rebuilt. 180 HP. $3,000.
BROOKS & DEMPSTER Load Luggers, latest model 2 cu. yd. CH-200 and LF-200 with buckets. A-1. $500 per set.
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2136 Jefferson, Kansas City, Mo.

Hundreds of Tons — Perfect Building Stone Squared, flat granite-sandstone, beautiful grain, excellent cleavage, easy access. Western New Jersey, 1½ mile railroad and highways. R. F. W. McDonald, 125 Oak Lane, Cranford, N. J. Phone Cr. 6-1990-R.

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5405 Lancaster Ave., Phila. 31, Pa.
TRinity 7-5200

One 3½ cu. yd. Red Arch Type AY heavy duty dragline bucket complete with all fittings. Almost new condition. Box 3222

Surplus Swivel Hook Double Sheave Blocks

2 10 ton "American" 14" swivel hook double sheave block, diamond pattern with cast steel sheave bushed with self lubricating bronze bushings, grooved for ⅝" rope. Groove diameter 12¼" equipped with 100 lb. cheek weights. 2½" swivel hook. Approximate shipping weight 234 lbs. American Hoist & Derrick Co. Dwg. 1-M-6560.

1 10 ton "American" 14" swivel hook double sheave block, diamond pattern with cast steel sheaves bushed with self-lubricating bronze bushings. Grooved for ¾" rope. Groove diameter 10½" equipped with 100 lb. cheek weights. 2½" swivel hook. Approximate shipping weight 235 lbs. American Hoist & Derrick Co. Dwg. 1-M-6560.

1 40 ton "American" 24" swivel hook double sheave block diamond pattern with cast steel sheaves grooved for ⅞" rope. Sheaves to be bushed with plain bronze bushings, with center bored sheave pin and ¼" Alemite hydr. grease fitting No. 1980 equipped with 300 lb. cheek weights and 5½" swivel hook. Total weight of block 1190 lbs. Dwg. BEFP 1-M-6560.

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Moore speed crane (Manitowoc) 50' boom, 10 ton at 12' radius. Model 179, Serial No. 6909, gas.
One Loraine 75-A shovel front w/1¼ cu. yd. dipper, chain crowd.
One Bucyrus-Erie 33-B shovel front w/1¼ cu. yd. dipper, chain crowd.
One Bucyrus-Erie 37-B shovel front w/1½ cu. yd. dipper, chain crowd.
One Marion 362 shovel front w/1½ cu. yd. dipper, chain crowd.
One Lorain 80-D shovel front w/1½ cu. yd. dipper, chain crowd.
Two Lima 603 shovel fronts w/1½ cu. yd. dippers, chain crowd.
Two Waukesha-Hesselman 6 cylinder oil engines, Model 6 WAKH with clutch for shovel operation.
One LeTourneau K30 Rooter.
One Williams DX dragline bucket — 2½ cu. yd.
Two Dempster Dumpster 300 LF (3 cu. yd.) units w/3 cu. yd. Tilt Type buckets.
One Dempster Dumpster 150XLF unit w/2 cu. yd. tilt type buckets.
HECKETT ENGINEERING, INC.
120 West Pearl Street Butler, Pa.

3 cu. yd. used heavy duty dragline bucket. Bucyrus-Erie Type "AY." In good condition. Located southern Texas. Price reasonable. McAlester Fuel Company, McAlester, Oklahoma.

Excellent lime stone quarry site, two miles from city. Complete diesel power plant. Will sell or lease. Wm. Heumader, 1702 Dewey Avenue, St. Joseph, Mo.

1—Classifier, Dorr 8'x26' DSD-1638C.
1—Crankshaft, metallized for 6-cylinder Wisconsin engine type E, series 12, bore 6x7.
5—Crankshafts, metallized for 6HBISD Cummins diesel engine.
1—Lot new parts for 2' Symons crusher.
1—Compressor, IR, size 315, Model GK, gas.
1—Crane, Ohio steam locomotive, 20-ton capacity.
1—Dipper, 4-yard 120-B manganese.
1—Dissociator, ammonia 100 CFH HT.
1—Drill, Parmaneo Sr. horizontal.
1—Drill, Hardscog Model E-9 horizontal.
1—Drifter, G.D. D-79.
1—Drifter, G.D. D-89.
47—Jackhammers, IR RB-12.
1—Switchgear, G.E. 300 K.W., 600 volt.
1—Fan, Sturtevant FB, 1500 CF.
1—Fan, Vano, 800 CF blower.
1—Generator, Whse. 120 KW, 440 volt, 157.5.
29—Hoists, IR 20-HP double drum electric tugger.
1—Hoist, National Cage size No. 137, 37 HP.
1—Hoist, Ottumwa No. 3396, 100 HP.
1—Hoist, Ottumwa No. 3397, 75 HP.
1—Hoist, Ottumwa No. 4197, 700 HP.
2—Jigs, Bendelari 2 Cell 42".
6—Jigs, Bendelari 3 Cell 42".
2—Jigs, Nordberg 2 Cell 42".
1—Jig, 4 Comp. 42"x92 A.C.
1—Loader M-8, Athey Truss Wheel Mobil.
1—Pump, AC two stage turbine. 1600 GPM, 225' Head, 135 HP motor, 440/3/60.
1—Pump, FM turbine, 1750 GPM, size 6, Type 705, 12 stage.
1—Pump, Hydroseal Frame C, with FM motor.
8—Screens, single deck vibrating 3x8, 3x12, 4x10, 4x12, 5x12.
1—Tractor, Case Model DI, with Hough Sweeper.
5—Trucks, Euclid Model 18 FD rear dump.
5—Haulers, Euclid Model 27-FDT-27W 20-ton bottom dump coal with Cummins engine.
1—Truck, Dodge Carryall Model WC-37USA 1941.
1—Welding machine, Hansen with 6-cylinder engine.
1—Welding machine, Westinghouse with 8-cylinder engine.
1—Valve, 12" Std. Fled. Clayton Float—New.
BUTLER BROTHERS
137 East 8th Street St. Paul 1, Minn.
Phone Cedar 2565

(For Sale continued on page 448)

For Sale

(Continued from page 447)

2½ yd. 80-D Northwest shovel.
New buckets: 2-yd. Johnson clamshell, 1-yd. and ¾-yd. Pettibone-Mulliken clamshells.
New sides and manganese fronts for: Northwest 80D and model 6 buckets also for 2½ and 1-yd. Marion, Link Belt, 1½ or 2½-yd. Lorain buckets.
Crowd chains for ¾-yd. Koehring No. 1641AA, 144 links—will also fit other shovels—unused.
Seaman Pullamixer, 72", 2 rubber wheels, unused.
Hughes-Keenan crane for D7 with hoister winch, new.
Roto tillers, new 20" and 26".
Wheels and tires for 50-ton Rogers trailer: 8 28 x 12 rear — 2 40 x 14 front, (used).
350-gallon water wagon w/2 rubber tired wheels.
Skagit winch, 80-ton pull, 2 drums, 2 niggerheads, Chrysler motor, on skids, w/spare parts, unused.
Kerrick Kleaner, slightly used.
Two 1½-yd. Northwest shovel fronts.
Coal loader, air cooled gas motor, on 2 rubber tired wheels, used.
Turnapull, unused, Super C.
One 10-yd. Woolridge scraper, slightly used.
One Heil winch for D4 Caterpillar tractor, unused.
Hoister winch for Cat D7 tractor.

R. E. CUNNIFF
393 Brookline Street, Newton Center 59, Mass.

Modern floating washing plant, capacity 200 yards per hour. Located Northern California on paved road near railroad. Available now. For particulars address owner, William von der Hellen, Box 1026, Medford, Oregon.

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800 gal. new Roscoe asphalt tank with flues, blowers & burners for truck mounting. $325.
New 1500 gal. Columbian tank on semi-trailer, complete with pump, hose & tools. $1100.
Cable burying plow, pneumatic tired, $345.
New Wiard No. 65 steel road plow, $25.
Used wheeled rooters, $200.
A&W model 77 patrol, dual tandem 10', $1750.
A. C. model 54 patrol, tandem 12', $1750.
Model L tractor & 10 yd. scraper, $3500.
Air Compressor, 315 LeRoi, gas, $1550.
Air Compressor, 210 Davey, gas, $1250.
New rock bits & drill, steel, ½ price.
5 ton roller, Galion, model R-3 wheel, $1950.
New Freuhauf 8 ton full trailer complete, $1550.
New slip scrapers, ¼ yd., $12.
New 2 ton hand winches, $45.
2½" Earth Auger-3 section handle, $1.50.
New ¾" cable 6 x 19 improved plow, steel, 20c.
New parts P & H cranes, Huber, Austin & Galion Rollers, Cat patrols, I. R. Compressor 315 with U. D. 18 diesel engine and CMC mixers. Buckeye 70 crane. Big saving. G. W. Kaufman, Markley Road—Cincinnati 30, Ohio.

SURPLUS DIPPERS FOR BUCYRUS-ERIE SHOVELS

2—½ cu. yd. Drag Shovel Dipper—17-B.
3—½ cu. yd. Skimmer Scoop Dipper—17-B.
1—¾ cu. yd. Welded Dipper—21-B.
1—1¼ cu. yd. Drag Shovel Dipper—38-B.
1—1½ cu. yd. Heavy Duty All Cast Dipper 42-B.
1—2 cu. yd. Rock Dipper—75-B.

F.O.B. Works
Write for any further information desired
BUCYRUS-ERIE COMPANY
Parts Department
South Milwaukee Wisconsin

New

DERRICKS

(ALL-STEEL, STIFF-LEG)

3 Available!

From U. S. Government Surplus. 30 Ton at 38 ft. radius, 60 ft. Boom with Bull Wheel.

Priced At a Saving!

■

FURNIVAL MACHINERY COMPANY

5405 Lancaster Ave., Phila. 31, Pa.
TRinity 7-5200

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8 Brand new 6DT-468 Buda Lanova diesel engines, 6 cyl. 4¼" x 5½", governor set at 1600 rpm (no load). Without power take off clutch or radiator. F.O.B. South Milwaukee, Wis. Box 3225

MECHANICS • HOME STUDY

Step up your own skill with facts & figures of your trade. Audels Mechanics Guides contain Practical Inside Trade Information in handy form. Fully illustrated. Easy to Understand. Highly Endorsed. Check book you want for 7 days' Free Examination. Send no Money. Nothing to pay postman. ☐Carpentry $6 • ☐Auto $4 • ☐ Oil Burners $1 ☐Sheet Metal $1 • ☐Welding $1 • ☐ Refrigeration $4 ☐Plumbing $6 • ☐Masonry $6 • ☐Painting $2 • ☐Radio $4 ☐Electricity $4 • ☐Mathematics $2 • ☐Steam Engineers $4 ☐Machinist $4 • ☐Blueprint $2 • ☐Diesel $2 • ☐Drawing $2. If satisfied you pay only $1 a month until price is paid.
AUDEL, Publishers, 49 W. 23 St., New York 10, N. Y.

Three Hug trucks with 12-cu. yd. hydraulic dump bodies, diesel powered. Two equipped with rebuilt engines, engine in third in good condition. 1200 x 20 tires 80% new.
One Mack truck with 11-cu. yd. hydraulic pump body, gas powered. 1300 x 24 front tires, 1400 x 24 rear, 80% new. Price $18,000, f.o.b. our plant No 1. Trucks can be inspected at any time.

Eau Claire Sand & Gravel Company
Eau Claire, Wisconsin.

For Bucyrus-Erie 54-B machine: 1 set of material required to convert 7206-BC special oversize caterpillars to standard caterpillars with oversize links, symbol 8423-BC. Equipment is new and unused, and is available for immediate shipment. Box 3220

EQUIPMENT WANTED

WANTED

One shovel front complete for Bucyrus-Erie 37-B late type machine having 20½" spread between centers of boom foot castings. Must be first class condition. Wire reply to: K. A. Forbes, Mechanical Engineer, Dept. of Highways & Public Works, Halifax, N.S., Canada.

Wanted: 40' dragline boom for Lorain 40, serial No. 2090. Box 3216.

Wanted: Koehring crane model 301 with Wisconsin engine "R.B." Write to Willy Boutin, 3281 Mont-Joly St. Montreal P. Q. Canada.

WANTED

FRONT DRUM COMPLETE

Bucyrus-Erie B-2 or B-3 Steamer.

Geo. W. Crothers Ltd.
Leaside (Toronto), Canada

Manufacturers' Notes

(Continued from page 446)

J. Graham to general manager of the Farm Tractor Division.

Marlow Pump Co., Ridgewood, N. J., announces the appointment of Beckwith Machinery Co., Pittsburgh, Pa., as distributor of Marlow centrifugal, diaphragm, and plunger pumps to the construction and strip mining industries in the Pittsburgh, Harrisburg, Bradford, and Wilkes-Barre areas.

Timken Roller Bearing Co., Canton 6, Ohio, announces the opening of a new branch plant in St. Thomas, Ontario, Canada. The plant is located on a rectangular, industrial building site of 70 acres with a frontage of 1,500 feet on Kings Highway No. 3. Its main building is of concrete, brick, and welded steel construction having 40 foot saw-tooth bays. Overall dimensions are 160 by 300 feet. The supervisory list includes: John Jolly, General Manager; Charles Wynn, Assistant General Manager; Jack Mc Ginnis, Production Superintendent; Leonard Lewis, Personnel Director.

The Euclid Road Machinery Co., Cleveland 17, Ohio, has appointed Euclid-Chicago Co., Chicago 6, Ill., Euclid distributor for northwestern Indiana, northern Illinois, and southern Wisconsin. Principals of the company, which will handle Euclid equipment exclusively, are Robert M. Jones and Horace K. Church. The Service and Parts Department is in charge of Harvey Landmeier; Jack Wathen is office manager.

Jones & Laughlin Steel Corp., Pittsburgh, Pa., announces the following personnel changes: D. W. Thomas, Manager of Sales, Tin Mill Products, has been appointed Assistant General Manager of Sales. J. E. Timberlake, Manager of Sales, Wire Products, has also been appointed Assistant General Manager of Sales. J. O'H. Anderson, Assistant General Manager of Sales, has been appointed District Sales Manager, New York District Sales Office. S. A. Fuller, District Sales Manager, New York District Sales Office, has been appointed Manager, Market Research Department. C. E. Kendall, Assistant Manager of Sales, Wire Products, has been appointed Manager of Sales, Wire Products. D. J. Henecker, Assistant Manager of Sales, Wire Products, has been appointed Manager of Sales, Wire Rope Products.

Wico Electric Co., West Springfield, Mass., is opening a new sales office in Milwaukee, Wis. In charge of the office will be Donald G. Forbes, Manufacturing Division Sales Engineer, and Orville H. Tift, Trade-Sales Engineer. Mr. Forbes has been associated with the engine and magneto industries for many years, while Mr. Tift has served Wico in several capacities for the past 14 years.

American Hoist & Derrick Co., St. Paul, Minn., has appointed William T. Kennedy Sales Representative for the company's Southwest Territory. Mr. Kennedy will make his headquarters at Houston, Texas.